NOTE

This Microfiche meets the quality requirements of the American National Standard for Microfiche of Documents (ANSI PH5.9-1975). However, because of imperfections in the document from which it was made, it contains images that are illegible or difficult to read. The source document for this microfiche is the best copy that could be obtained prior to filming.

CIS

S. HRG. 100-789

REVIEW OF 1990 CENSUS PLANNING

HEARING

BEFORE THE

SUBCOMMITTEE ON FEDERAL SERVICES,
POST OFFICE, AND CIVIL SERVICE

OF THE

COMMITTEE ON GOVERNMENTAL AFFAIRS UNITED STATES SENATE

ONE HUNDREDTH CONGRESS

SECOND SESSION

JUNE 17, 1988

Printed for the use of the Committee on Governmental Affairs

U.S. GOVERNMENT PRINTING OFFICE

87-468 WASHINGTON : 1988

For sale by the Superintendent of Documents, Congressional Sales Office
U.S. Government Printing Office, Washington, DC 20402

S401-2

COMMITTEE ON GOVERNMENTAL AFFAIRS

JOHN GLENN, Ohio, *Chairman*

LAWTON CHILES, Florida
SAM NUNN, Georgia
CARL LEVIN, Michigan
JIM SASSER, Tennessee
DAVID PRYOR, Arkansas
GEORGE J. MITCHELL, Maine
JEFF BINGAMAN, New Mexico

WILLIAM V. ROTH, JR., Delaware
TED STEVENS, Alaska
WILLIAM S. COHEN, Maine
WARREN B. RUDMAN, New Hampshire
JOHN HEINZ, Pennsylvania
PAUL S. TRIBLE, JR., Virginia

LEONARD WEISS, *Staff Director*
JO ANNE BARNHART, *Minority Staff Director*
MICHAL SUE PROSSER, *Chief Clerk*

SUBCOMMITTEE ON FEDERAL SERVICES, POST OFFICE, AND CIVIL SERVICE

DAVID PRYOR, Arkansas, *Chairman*

JIM SASSER, Tennessee
JEFF BINGAMAN, New Mexico

TED STEVENS, Alaska
PAUL S. TRIBLE, JR., Virginia

EDWARD J. GLEIMAN, *Staff Director*
JEFFREY D. LANDRY, *Minority Staff Director*
DOROTHY DOUGLAS, *Chief Clerk*

CONTENTS

	Page
Opening statements:	
Senator Pryor	1
Senator Heinz	18
Senator Sasser	19

WITNESSES

FRIDAY, JUNE 17, 1988

Richard L. Fogel, Assistant Comptroller General, General Government Division, General Accounting Office, accompanied by William M. Hunt, Group Director, Jacob Kaufman, Assignment Manager, and Seymour Efros, Associate General Counsel for Procurement	3
John G. Keane, Ph.D., Director, Bureau of the Census, Department of Commerce, accompanied by Charles Jones, Associate Director for Decennial Census, and Bryant Benton, Associate Director for Management Services	11

ALPHABETICAL LIST OF WITNESSES

Benton, Bryant: Testimony	11
Efros, Seymour: Testimony	3
Fogel, Richard L.:	
Testimony	3
Prepared statement	21
Responses to written questions submitted by Senator Pryor	34
Hunt, William M.: Testimony	3
Jones, Charles: Testimony	11
Kaufman, Jacob: Testimony	3
Keane, John G., Ph.D.:	
Testimony	11
Prepared statement	39
Responses to written questions submitted by:	
Senator Pryor	62
Senator Sasser	69

APPENDIX

Prepared statements of witnesses in order of appearance	21
"Decennial Census—Minicomputer Procurement Delays and Bid Protests: Effects on the 1990 Census," report by the General Accounting Office, June 1988	72

REVIEW OF 1990 CENSUS PLANNING

FRIDAY, JUNE 17, 1988

U.S. SENATE,
SUBCOMMITTEE ON FEDERAL SERVICES,
POST OFFICE, AND CIVIL SERVICE,
COMMITTEE ON GOVERNMENTAL AFFAIRS,
Washington, DC.

The Subcommittee met, pursuant to notice, at 11:35 a.m., in room SD-342, Dirksen Senate Office Building, Hon. David Pryor, Chairman of the Subcommittee, presiding.

Present: Senator Pryor.

OPENING STATEMENT OF SENATOR PRYOR

Senator PRYOR. Ladies and gentlemen, the Subcommittee will come to order.

I would first like to make my apologies. This morning we had a task force meeting with Secretary Lyng and a 16-member task force from the House of Representatives and the Senate on the drought conditions around the country. I'm a member of that task force and at 11 o'clock we had two back-to-back votes that were called, so I do apologize for being late.

I will hurriedly run through my statement and then I will immediately call upon our witnesses.

Today the Subcommittee on Federal Services, Post Office, and Civil Service will conduct a hearing to review the status of plans for the 1990 Decennial Census of Population and Housing. In particular, we will focus on the operational issues instrumental in conducting a high-quality census.

It has been said that the census provides a snap shot of the American population in this country and tells us basically who we are and what we are all about. Reapportionment of the seats in the House of Representatives, formulation of Congressional and State legislative redistricting plans, and distribution of billions of Federal and State dollars ride on the population counts the Bureau provides. Public and private planners rely on census information to locate roads, schools, hospital, parks, and private corporations often use this data for marketing purposes.

The Census Bureau has pledged to make the 1990 census the best one yet. One of the keys to achieving that goal is to speed up collection and tabulation of data from census forms through the use of minicomputers. In 1986, the Bureau decided to procure up to $80 million in minicomputers and software to meet the goal, but the procurement has experienced a range of problems from delays to bid protests, resulting in little or no time to test the equipment.

From my experience as a member of the Finance Committee, I am well aware, as are almost all taxpayers, what can happen when an agency fails to adequately test computer hardware and software in an operational setting.

Last year, I became concerned that a problem-plagued procurement effort might cause the snapshot of the American people to turn out blurry and maybe even out of focus. So, I asked the General Accounting Office to look into the minicomputer issue.

Today the General Accounting Office [GAO] will discuss its report, entitled, "Decennial Census—Minicomputer Procurement Delays and Bid Protests: Effects on the 1990 Census." [1] In that report, GAO points out to us that the Bureau did not, in fact, identify its automatic data processing equipment needs early enough in the decennial planning process to ensure timely procurement.

Coupled with a 6-month delay in procuring the family of minicomputers, the Bureau was unable to test and validate all the software programs during the 1988 dress rehearsal. Consequently, the software program, critical to supporting the census, will be untested in a census-like environment prior to the 1990 census. GAO warns that this situation in the census is strikingly reminiscent of the problems the IRS encountered in 1985, 3 years ago, when they replaced the Service center's computers.

The IRS ended up with two black eyes when the taxpayers became increasingly frustrated as their refunds were delayed and the Government was forced to make substantially more interest payments on late refunds.

If there are any bugs in the software programs to be used to process census data and manage operations, I hope that we can find out now before it is too late.

There is one aspect that I do find very, very troublesome, and I think other members of the Committee join me in this concern. In the interest of time, the Department of Commerce and Census officials basically agreed to pay three bid protesters $1.1 million without regard to the merits of the case.

It appears to me that the procurement process is seriously flawed when the Government is able to make a cash settlement without a thoughtful and thorough review of the merits of a protest and without a thorough assessment of the justification for those particular claims. GAO reports that the Census Bureau just basically wrote a check for $1.1 million without knowing whether that amount was justified or not.

The Bureau estimates that the census is going to cost $2.6 billion. At that price, the Nation, as well as the taxpayer, deserves the most accurate and clear picture of the United States of America. Given the problems GAO has identified—delays in procuring equipment and failure to meet essential milestones in the planning process—I do have great concerns that the Bureau may not be able to control those costs and provide us with an accurate count. This is what the hearing is about today.

---

[1] See p. 72 for the report.

I, for one, will be monitoring this situation. I look forward to exploring with our witnesses how prepared we are to conduct the 1990 census, which is only 24 months away.

Our first witness today is from the General Accounting Office, Mr. Richard Fogel, the Assistant Comptroller General of the General Government Division. We look forward, Mr. Fogel, to your testimony and thank you for appearing.

Mr. Fogel, I do not have the identification of your colleagues, if you would introduce them, please.

TESTIMONY OF RICHARD L. FOGEL, ASSISTANT COMPTROLLER GENERAL, GENERAL GOVERNMENT DIVISION, GENERAL ACCOUNTING OFFICE, ACCOMPANIED BY WILLIAM M. HUNT, GROUP DIRECTOR, JACOB KAUFMAN, ASSIGNMENT MANAGER, AND SEYMOUR EFROS, ASSOCIATE GENERAL COUNSEL FOR PROCUREMENT

Mr. FOGEL. Thank you, Mr. Chairman. On my right is Bill Hunt, Group Director, who deals in the census area and on my left is Jack Kaufman, our Project Director, who is really following the census very closely and has for years.

What I would like to do is summarize my statement and let the full statement appear in the record [2] if that is acceptable.

We are pleased to be here to discuss our observations on the census preparations for the 1990 census. Conducting the census is a mammoth and costly task, involving over 300,000 temporary staff and about 450 temporary offices, and as you said, it will cost about $2.6 billion to conduct.

Early in the 1980s the Bureau analyzed the problems experienced in the 1980 census. These problems included delays in data dissemination, the use of slow, error-prone clerical operations, difficulties in providing timely and high-quality maps, and cost escalation.

This analysis was designed to identify opportunities for improving the census operations, particularly increasing the use of automation. However, we have found late decision-making and procurement delays have diminished the potential effectiveness of the Bureau's automation initiatives.

For example, as we detailed in our June 14 report, which you mentioned, a key component of the Bureau's plans for the 1990 census involved the increased use of automation to improve the accuracy and timeliness of census activities. To help accomplish this, in January of 1986 the Bureau decided to procure about 550 minicomputers at the cost of about $80 million. The vast majority were to be used in the 1990 census for such purposes as checking in questionnaires, keying address and questionnaire data, preparing management information reports, and generating and updating automated maps.

But before the minicomputer contract was awarded, a bid protest was filed with GSA's Board of Contract Appeals by three offerors. They contested the Bureau's determination that their proposals did not adequately respond to technical provisions of the Request for

---

[2] See p. 21.

Proposals. After the hearing, the GSA Board temporarily suspended Commerce's procurement authority.

Rather than contesting the protest, Commerce and the Bureau decided to settle it by making a cash settlement and payment to the three offerors. Commerce and the Bureau felt that they could not afford the additional time required for the Board to decide the protest, regardless of its merits.

Commerce also discovered what they believed to be a procedural flaw in the procurement process that possibly could jeopardize the Government's case.

The settlement provided that each of the three offerors could receive up to $400,000 for proposal and preparation and protest costs after submitting appropriate supporting documentation. After making a cursory review of the documentation submitted, the Bureau paid a total of $1.1 million to the three offerors.

When we looked at this we had to agree that although the concern for time was not without merit, the cash settlement could have been avoided if the Bureau had not initially created its own management dilemma by failing to plan properly for and manage the minicomputer procurement in the first place.

Indeed, we issued a report in 1983 which talked about the need for the Bureau to start planning early for the 1990 census, so part of the problem was just that management did not start thinking about this early enough.

And, indeed, incomplete and untimely planning for the census organization and procedures prevented the Bureau from fully identifying, documenting and planning for all its automatic data processing needs. This resulted in a late decision to procure the computers and thus contributed to an additional 6-months delay in the procurement process.

A principal objective of the dress rehearsal was to conduct a full-scale test of the minicomputers, under census-like conditions, which everyone agrees is critical to have a smooth functioning census. But the contract was not awarded until May of 1987, which was several months after the start of the dress rehearsal. As a result, the equipment was not available for use in the initial dress rehearsal operations, such as keying addresses and updating automated maps.

While the new minicomputer system became available for later phases of the dress rehearsal, it could be not be effectively used because of insufficient time to develop and fully test software. Although our review to date of the dress rehearsal has found that Bureau officials have identified and corrected many software errors, they have not systematically validated, verified and tested the software in accordance with recommended Federal standards.

What I would like to do now is briefly discuss some of the problems the Bureau experienced using its newly automated management information system in the dress rehearsal. District census officials experienced problems with the automated applicant file which was supposed to identify the status of all job applicants and their availability for work. This becomes very important if you are hiring 300,000 temporary employees, that you keep track of them well.

The supervisors lost confidence in the system and did not use it in the dress rehearsal for making hiring decisions. Automated staff performance reports used to manage follow-up activities and calculate enumerator bonuses were limited because of missing data and inaccuracies. Consequently, to avoid improper payments, the district personnel had to partially rely on manual records to calculate the bonuses.

Reports used to assess training needs and performance of clerks editing questionnaires were not used as a basis for taking personnel actions because, again, the supervisors were not confident of the information provided.

As you noted, using software before it is fully tested is very risky and can result in systems not functioning as intended. In the 1986 pretests for the 1990 census, the Bureau did not allow sufficient lead time to adequately test software programs for its previous computer systems. As a result, many software programs initially did not work for some operations and had to be modified.

Now, the Bureau was able to deal with these problems by having technical staff from headquarters talk to people in the field and correct them. Our concern though is how would that get done in the full census. You cannot have those types of things going on once we go out of the dress rehearsal into the actual census operations. Because, as you said, in the much-publicized IRS case, they did not establish adequate quality assurance programs, they did not test, they went on-line, and they had tremendous problems.

We do not see that the Census Bureau is in that state right now but we are very concerned if they do not adequately test the software there is a risk data will be delayed, information will not be as accurate as it should be and it is going to cost us more than it should to conduct the census.

That is why we recommended in our June 14 report that the Census Bureau prepare a formal contingency plan in the event that the minicomputer system does not operate properly. This plan should include provisions to use available mainframe capacity and, if necessary, do some operations manually.

I would now like to discuss some concerns we have about changes and delays in the Bureau's development of address lists for suburban and rural areas. These lists are important because they are used to deliver the questionnaires and serve as a control list for non-respondents for follow-up activities. Originally, the Bureau planned to canvas suburban and rural areas, called prelisting, to develop address lists for an estimated 45 million households starting in February 1988.

The planned starting date for the 1990 prelist was a year earlier than in the 1980 census. The Bureau did this because they recognized they needed this time to plan ahead. But primarily because of late map production and concerns about the availability of good mailing addresses, the Bureau changed its prelist plans. Automated files needed to develop the maps are being generated by the Bureau's automated geographic support system, which the Bureau estimates will cost about $371 million for the 1990 census.

The Bureau significantly underestimated the computer capacity requirements and the time needed to prepare software for these automated files. These problems were compounded by the late ac-

quisition of the minicomputers. So they had to change their prelisting in several ways, basically cutting down the number of prelist units and deferring some pretesting because of these problems.

I would like to summarize by saying that overall we believe the Bureau will be able to conduct the 1990 census and provide the counts to the President by the statutory deadline. But what we are concerned about is the lack of time to develop and test the software for the census, particularly under census-like conditions in the dress rehearsal, because this could adversely affect the accuracy and increase the cost of the census.

We have done a lot of work, Mr. Chairman, over the last couple of years looking at agencies that have installed computer systems and if there is one thing we have learned, it is the more automated something becomes, the more rigorous your planning and testing needs to be of the software and systems to make sure they work before you go live.

We are not saying the census is not going to be able to do it, and we know they are working hard to try to do it, but we are not totally confident that given the time they have got, that they can do it as effectively as they might.

Senator PRYOR. Thank you for your statement. Do your colleagues have anything to add to this?

I would like to first say that last year, in 1987, if my memory serves me correctly, we had two oversight hearings on the census. That was 3 years out, 3 years before 1990. I felt a little bit concerned at that point. We had a lot of questions. Here we are 2 years out and that concern is now becomming a queasy feeling. I am getting very troubled about it.

I think that there still are a lot of questions. I am concerned about the process by which the computers were purchased. I am also very, very concerned about the qualitative aspects of the 1990 census, and I am certainly concerned about the costs.

Now, what actions do you think the Bureau has taken to assure sufficient controls are in place in these next months ahead to get everything ready to start the 1990 census?

Mr. FOGEL. Well, I would like to let Mr. Kaufman get into detail on that. We are very aware that as a result of the dress rehearsal, they have identified certain problems and issues and they are trying to identify solutions to address them.

I think one of the questions we have got is are they aware of all the problems that are coming up? Are those filtered through? And are they able to make decisions as rapidly as they need to in some cases?

Mr. KAUFMAN. What we are finding is that they are trying to solve individual problems as they occur on an ad hoc basis. They should be using a systematic approach, with a quality assurance program, which I think the Bureau has just started recently, rather than some time much earlier.

I think if they had started a quality assurance program on the software program earlier, they would have been in a better position for the dress rehearsal and as they start the actual census, which in fact starts this month with the prelist activity.

Mr. FOGEL. So they do have systems in place, for example, where they are trying to correct problems, validate the software, stand-

ardize procedures when they come up. We are now in the middle of doing some work looking at how the whole dress rehearsal is going, so we do not feel that they are not trying to address the issues.

I think you need to probably get from the census officials a more specific accounting of the timeframe on when they think they are going to be able to solve some of these.

Senator PRYOR. Mr. Fogel, or maybe your colleagues can answer this; how much have we spent to date on computers for the census?

Mr. FOGEL. Well, for these computers Census spent about $25 million to date and they have, our figures show, around 62, so somewhere probably between 60 and 65 computers.

Senator PRYOR. And, we have spent about $25 million?

Mr. FOGEL. That is on the minicomputers. That is out of the $80 million.

Senator PRYOR. Now, how much more are we going to have to spend for computers?

Mr. FOGEL. Mr. Hunt said it is about $22 million. How much more?

Senator PRYOR. Yes. Do we have to buy a lot more minicomputers?

Mr. FOGEL. It can be up to $80 million. A lot of the computers that they still need to buy are those that would go in the district offices that they have to set up around the country, about 450 offices, to do a lot of the management operations.

It is our understanding the ones they bought to date are primarily ones that are more powerful and are being used in the processing offices.

Senator PRYOR. What is going to happen, by the way, to those computers when the 1990 census is completed and they close up shop? What happens?

Mr. FOGEL. I thought maybe they would give them to GAO, because we need more.

Senator PRYOR. That is a good point. Does GAO want those computers?

Mr. FOGEL. I do not know that we would. We are not aware yet of what their plans are for disposal, but I am sure Census would have some views.

Senator PRYOR. I guess they would declare a surplus. I do not know what they would do. Perhaps we will look into that.

Now, how can the Bureau better utilize the remaining time—they have very little available time left—to effectively conduct the 1990 census? What should they be doing with their time and how could they better use it?

Mr. FOGEL. It seems to me, picking up on what Mr. Kaufman said, that you have to begin to categorize some of the problems that exist that they are finding out in the dress rehearsal, such as in the functional areas, and dealing with the questionnaires, such as the problems with delivery, their receipt, and their processing.

If I were over there, I would really want to make sure, number one, that I had a senior official accountable for each one of these functional areas and make sure that he or she had good communication with my people out in the field offices and the district offices; identify fairly quickly the problems; have a very tight time schedule that would indicate when you have to get decisions made

to resolve outstanding issues, knowing that I am going to be bringing on board within the next couple of years 300,000 people.

In short, I would want to make sure that I had the problems identified, that I had a fairly tight timeframe that said how long it is going to take me to address them, sort through the process of working with a team to get a solution, and then make a decision. So I think that is one thing that we would really like to see.

Something you said might also be appropriate; that is for the Subcommittee to consider holding census accountable to make sure that they address the problems. But like I said, we do not have any doubt they will be able to do the census.

Senator PRYOR. It is difficult to hold the census accountable because it is a one-shot deal every 10 years and then the issue sort of evaporates. I say that in all due respect, even though the service they perform is complex and meaningful to all the Federal and state programs and to our way of life.

Now, you have really only made one recommendation about whether these computers have or have not been, let's say, battle-tested before the census begins and that is a formal contingency plan needs to be adopted.

Mr. FOGEL. Yes.

Senator PRYOR. Is that the only recommendation that you make? What is going to happen if these computers do not work? If the system breaks down, what happens?

Mr. FOGEL. Well, what happens is they will have to do it manually.

Senator PRYOR. What do you mean, manually?

Mr. FOGEL. They will have to hire more people and they will have to use more clerks to check material. It will be more labor intensive. For example, in the dress rehearsal when the managers in the district offices could not use the computers to get the information they needed to decide how much of a bonus they ought to pay the enumerators based on their performance, they did it manually.

It takes more time and it is more intensive, so it is going to end up costing us more money. I think what we are saying is that the primary goal is get the census completed on time and do it as accurately as possible. So part of the contingency plan has to be to do that.

Another part of the plan would be to look at their mainframe capacity and to see whether the minis do not work, they can use some of their bigger computers.

Senator PRYOR. Sometime in 1990 or 1991 we are going to be holding a hearing, I am sure, regardless of who is on this Subcommittee, or whoever is around here, looking back on how successful the census was, or unsuccessful. And I think this hearing is going to be one that we will want to look at, especially as to your recommendations and to this Subcommittee's concerns.

A couple more questions. Is the census going to cost us more than $2.6 billion dollars?

Mr. FOGEL. I think you would have to ask Census for a specific answer to that. Our work indicates that it is probably within that ball park range.

Senator PRYOR. How much did the last one cost us?

Mr. FOGEL. The last census cost $1.1 billion in 1980. I guess you could say there are more people today and we have some inflation.

Senator PRYOR. The final series of questions relates to the contracting for the computers and the three computer firms which were not successful and protested because they were not able to sell their computers to the Census Bureau.

It seems to me that one morning the Bureau woke up and said, "Look, we have three protesters out here who did not get to sell computers to us, so let's get them off our back."

As lawyers or insurance companies do so often in negotiating settlements, the Bureau adopted a figure that everyone would accept and wrote a check for $1.1 million to the protesters.

This concerns me, the methodology used in doing this. I am wondering if there is a precedent of writing a check like this to three unsuccessful bidders, in my mind, without justification?

Mr. FOGEL. We are not aware of a lot of specific instances where this has come up in the past because to find this out you have to do as we did at your request, look in detail at a situation. Our lawyers have looked at it. It certainly is not illegal, what they did. The agreement they reached did require the three firms to provide some information to Commerce and Census. But Census and Commerce gave it only a very cursory look.

We, too, are uncomfortable with the fact that it was done this way. And, you know, we had said before that the primary reason it happened was they did not make the decision soon enough. They then made a judgment that time was of the essence.

Now, one could argue, if they were that concerned about time, whether they could have perhaps made a more effective argument? Could the Commerce and Census lawyers have made a more effective argument to the GSA board that time was really of the essence? And our reading of the file indicates they could not convince the board that the time was of the essence.

Senator PRYOR. How many people were in on this decision to write a check for $1.1 million to the unsuccessful bidders or protesters?

Mr. FOGEL. I do not know.

Mr. KAUFMAN. Mr. Chairman, do you mean who was involved in making the decision?

Senator PRYOR. Yes.

Mr. KAUFMAN. There were a number of key people in the Bureau of the Census and the Department of Commerce who entered into the deliberations on this decision, including their legal department and the Deputy Secretary.

Senator PRYOR. You know everyone is looking at the Department of Defense right now. It's on page one. The only surprise I have today about the revelations coming out concerning this whole area of consulting and contracting procurement area—the only surprise I have—is that anyone is surprised.

I am amazed that anyone is aghast or shocked or surprised about this because it has been coming, and with that open money sack, this is going to happen.

I am worried about the precedent set by the handling of this matter. Let's say McDonnell Douglas or Boeing bids on a new plane. They are competing and one of them does not get it. DOD

says, well, McDonnell Douglas did not get this bid, so we will just write them a check for a million bucks, kind of keep them in business, or get them out of the way.

I am worried about the precedent, and I think that you gentlemen may be, too.

Mr. FOGEL. Well, I think we are. We did not find anything in this particular contract or this settlement that led us to think there were any improprieties involved. There certainly was not, from our view, good management back on the front end again. I think you are always in a difficult position if you are the operating official and you want to get it done.

But we, too, Senator, are very concerned that this type of settlement does not set a precedent for doing this type of thing. That does not mean that the whole procurement process is not difficult. But there are procedures in place if you have got a real need to get something done to make a forceful case and get it done.

You know, we are not totally uncomfortable with the procedures that exist if the agencies aggressively want to try to follow them and make their case. So this does bother us.

Senator PRYOR. Yes. Mr. Fogel, let me read, if I may, a few lines from page 25 of the GAO report dated June 1988. I will ultimately put the full report in the record. This is relative to paying off the protesters.

One, GAO found "* * * insufficient or no support for a large portion of claimed cost; two, cost claims were worked before the issuance date of the RFP; three, incorrect computation of some claimed costs." And, finally, I quote the General Accounting Office, "We also found that the Bureau made a cursory review and did not question the offerors claimed costs."

That is troubling.

Mr. FOGEL. It is troubling. Yes, it is.

Senator PRYOR. Is there any way we can get that money back?

Mr. FOGEL. I do not think so. I could ask our lawyers. But I think the settlement has been made. I do not know whether we could go in and audit the settlement. Let me ask Seymour Efros, who is our Associate General Counsel for Procurement in the GAO, if he would like to come up and say something about that.

Mr. EFROS. Our general feeling is that once the Government or any party shakes hands and signs off on a deal it is pretty binding unless bad faith or mutual mistake can be proven. While the Bureau should not have entered into a cost settlement on a protest it felt had no merit, once it did, it was pretty difficult to get the money back.

Senator PRYOR. Well, you have been with the General Accounting Office now a number of years, is this correct? Have you ever seen a practice like this occur in any of your dealings or matters that you have been involved with in the Federal system?

Mr. EFROS. We do not have the background information to know on what basis agencies have been settling protests. I guess the authority for cost settlements of protests basically came in 1985 with the Competition in Contracting Act. Prior to that the standards for such settlements were pretty limited. What has happened since then is essentially new.

Senator PRYOR. Well, would you like to amend your statement by saying the standards were pretty loose? You use limited.

Mr. EFROS. No. I do not mean the standards have become loose; before enactment of this Act, there were very narrow standards for cost settlements.

Senator PRYOR. Well, I think they were loose, so I will use my own words.

Well, once again, I want to thank the General Accounting Office. This is a splendid report. It is illuminating. Maybe it will save us from making some mistakes, not only in procurement in the future but also it will certainly, I think, put the Census Bureau on notice that we are going to continue our monitoring of this census that is so critical to this Nation.

As I made a statement yesterday in private, I will make it again in public. We might be able in this country to do without the Legislative Branch of Government, without the House or Senate, but if we ever do away with the General Accounting Office, we are in trouble.

Thank all of you very much.

Mr. FOGEL. Thank you, Mr. Chairman.

Senator PRYOR. Now, our next witness is Dr. John G. Keane, the Director, Bureau of the Census, Department of Commerce. Dr. Keane, I believe that you are accompanied by Mr. Charles Jones, Associate Director for the Decennial Census, and Mr. Bryant Benton, Associate Director for Administration.

We look forward to your statement.

TESTIMONY OF JOHN G. KEANE, PH.D., DIRECTOR, BUREAU OF THE CENSUS, DEPARTMENT OF COMMERCE,[3] ACCOMPANIED BY CHARLES JONES, ASSOCIATE DIRECTOR FOR DECENNIAL CENSUS, AND BRYANT BENTON, ASSOCIATE DIRECTOR FOR MANAGEMENT SERVICES

Dr. KEANE. Thank you, Mr. Chairman. Mr. Jones is on my right and Mr. Benton is on my left.

We appreciate your interest in our plans, Mr. Chairman. Congressional review is a vital part of our planning process, and that review includes the activities of the General Accounting Office. We welcome their knowledgeable comments and advice, and that is a sincere sentiment.

I will discuss six topics, and I am going to shorten it from what I planned as an oral statement, but cover something about the following six. First, the status of planning for the census; the preparatory operations that have begun or will begin soon is the next one; followed by the census questionnaire content and sample design; four, plans for increased automation in the census; five, plans for promoting the census and building public support; and the adjustment issue of the 1990 census.

On to planning: The dress rehearsal has proceeded fairly smoothly. There have been no major problems to date that would cause us to change our plans for 1990. We have, as expected, identified vari-

[3] See p. 39 for Dr. Keane's prepared statement.

ous refinements to operations and systems, but this is why we conduct tests and why we have dress rehearsals.

The second area is preparatory operations. Major preparatory operations for the 1990 census have already begun and will accelerate this year and next. These include address listing, the creation of an automatic geographic support system, the printing of census questionnaires, and the acquisition of space for data collection and data processing.

I will talk about the first of these, the address list. One of the major preparatory activities is the compilation of an address list that we will use to control the delivery and the return of questionnaires for most housing units in 1990. For the more urban areas of the country we purchased about 56 million addresses from commercial vendors under contracts awarded in February of this year. We currently are assigning geographic codes to those addresses by computer.

We have begun listing addresses for the more suburban and rural parts of the country where lists either cannot be purchased or cannot be assigned geographic codes by computer. This operation, which we call "prelist" will be conducted in two phases and in all, we will list about 43 million addresses. Our experience shows that several updates of the original address list by postal workers and census enumerators are required to produce a complete address list for the census. These updates will begin later this year.

On to questionnaire content and sample design. As in recent censuses we will have two primary questionnaires, a short form and a long form. The short form will contain the basic population and housing subjects we ask of all persons in housing units. The long form will contain these same basic subjects plus additional population and housing items asked of only a sample of persons and housing units.

As required by Title 13, U.S. Code, I reported to you on March 31 of this year on the content of the questionnaires for the 1990 census. For the 1990 census we are proposing a sample size of about 17.7 million housing units. This means that about 1.6 million fewer housing units will be required to complete the long form than if we used the 1980 sample design. We are determining the final criteria to be used to allocate this sample in the various areas.

The next area is automation. The 1990 census will be far more automated than the 1980 census, or any previous decennial census. Traditionally, census data collection, and much of the census data processing have been paper and people intensive tasks. The use of automated equipment can help us deal with the mountains of paper and the thousands of clerical tasks. And it can lead to a more accurate and timely data, and greater control over the whole census process. I discussed the various systems of operations we are automating in the submitted written statement.

On to the family of minicomputers still under automation. To conduct an automated census requires a good deal of computer equipment. There are dramatic changes involved in moving from a census with large-scale clerical operations to one using significantly increased automation. We have had to balance the need for ade-

quate time to plan and test these new departures with the need for adequate procurement lead times.

Our procurement activities are now progressing as planned and we foresee no major problems. In June 1987, we completed the award of a contract to the Digital Equipment Corporation for the so-called "family" of minicomputers. The first computers have been delivered to support our census operations, including the 1987 economic and agricultural censuses, the automated geographic support system, and the 1988 Decennial Census dress rehearsal and prelist operation.

We disqualified several companies from the family of minicomputers procurement because their proposals did not meet the requirements for data access software. The companies contended that their software products did meet the requirements and filed a protest to the Board of Contract Appeals at the General Services Administration. The Board then suspended the procurement for 45 working days, which translates into about 9 weeks.

The suspension was not made based on the merits of the protests. The Board determined that the interests of the United States in proceeding with the procurement were not so urgent and compelling that they could not await its decision. We settled the protests out of court because a delay of 9 weeks would have precluded our using the minicomputers for the economic and agricultural censuses or in the dress rehearsal census, two key needs and opportunities.

We believe that the benefits of proceeding with the procurement far outweighed the cost of the settlement. We did lose some time because of the delay in procuring the minicomputers, but we have been working hard to get back on schedule. We lost approximately 6 months. We have gained most of that 6 months back.

For example, after delivery of the first minicomputers we undertook accelerated development of software programs for the dress rehearsal and we established a special systems support group to install and test the hardware. This was done successfully. We are now in a favorable position for timely development of reliable 1990 systems. I wish to emphasize that we are testing software now and all software will be tested before the 1990 census. In fact, I invite you to visit our national support center in Baltimore, if you could find the time, to observe this software testing.

Promotion, the fifth topic. Public cooperation is the cornerstone of a successful census. Without public cooperation we could not have a complete count and be able to produce accurate data in a timely manner. A creative and ambitious promotion campaign is essential if we are to maintain, and we hope, increase, public cooperation.

For the 1990 census we plan an extensive, multifaceted promotion campaign. In my written testimony I outline the promotion efforts through national and community organizations, Federal agencies, State and local governments, the private sector, how we plan to use religious organizations and schools and so forth. I also review our advertising efforts. In this regard, I will mention one thing and that is, for the first time we will have minority advertising firms to tailor our messages to those minority populations.

87-468 O - 88 - 2

Finally, adjustment issue for the 1990 census. Mr. Chairman, the Commerce Department announced in October 1987, that it will not adjust the 1990 census counts for coverage errors. I discuss in some detail in my written testimony why the Commerce Department made the decision not to adjust.

We have made considerable progress in developing under-count measurement techniques for the 1990 census, but there are still serious doubts among statisticians—I am talking now inside and outside the Census Bureau—about our ability to make census counts more accurate through the adjustment process. There was mixed opinion among Census Bureau staff on our capability to correct the census for estimated under-counts, and over-counts, for that matter.

So by way of a wrap-up statement, Mr. Chairman, we have taken a number of steps to improve the efficiency and the accuracy of the 1990 census. We want to focus our energy, attention and resources on these efforts to make the census better. We expect these steps will continue the trend of reducing the under-count, which I might remind you has gone down from approximately 4 percent in the 1950 census to 1 to 2 percent in the 1980 census. So there is improvement on the under-count measurement.

Thank you, and my colleagues and I—and I should say that Charlie Jones here is the Associate Director for the Decennial Census, so that that is all he focuses on all the time, and Mr. Benton has procurement among the many responsibilities which comprise our Management Services Director.

Senator PRYOR. Dr. Keane, I thank you, and I thank your colleagues for appearing this morning before the Subcommittee.

Now, the General Accounting Office is stating, I think, reading their report to the Congress, that on your file date—I guess that was the dress rehearsal, March 20, 1988—that there were two things different from what will be done in 1990. One, that the questionnaire is going to be somewhat different.

My interpretation of the GAO report is that they maintain that all the software will not have been tested in March 1988, in the dress rehearsal before the actual work of the census begins in 1990.

You just stated that all the software has been tested.

Dr. KEANE. Or will be.

Senator PRYOR. Was that done on March 20? I am confused about this.

Mr. JONES. Or will be tested before the 1990 census begins. All the software that we will use in the 1990 census will be tested prior to its use in the census.

Senator PRYOR. Prior to the census?

Mr. JONES. Right.

Senator PRYOR. Now, we used a different questionnaire on March 20, 1988, in the dress rehearsal than we are going to be using in 1990. Doesn't this confuse the issue?

Mr. JONES. Not that much. The changes were not as dramatic as they might at first sound. What is going to happen for 1990 is a number of questions are going to be put back on the questionnaire that had been dropped off for the dress rehearsals, and we had tested those questions before, so there are no new questions being introduced.

Senator PRYOR. Now, are we going to have more questions in 1990 than we had March 20, 1988, or fewer questions?

Mr. JONES. Yes, sir. We will have more questions.

Senator PRYOR. About how many more questions?

Mr. JONES. It is a very small number. I could present that for the record.

Senator PRYOR. Any particular area that we are trying to find out more about when we take this snapshot of America?

Mr. JONES. I think some of the changes were moving questions from the long form to the short form. The long form only goes to about one in six households whereas the short form goes to every household. Some of major changes were moving them from one questionnaire to another. And I think those were primarily the questions on housing.

Senator PRYOR. On housing?

Mr. JONES. Yes, sir. Such things as how many rooms are in the house.

Senator PRYOR. Did you ever work with the census in the old days when they just walked around door-to-door.

Mr. JONES. Yes, sir, I did, unfortunately.

Senator PRYOR. You did that?

Mr. JONES. Yes, sir. We still do a lot of that.

Senator PRYOR. Just as a personal note, I can remember one afternoon when I was very small, my mother was getting ready to have her fourth child, my younger sister, and the census people came in and we were all gathered around in the living room enjoying this very much.

My mother was known to be absent minded and the census people said, "Mrs. Pryor, tell me the names of your three children. Their first, middle, and last names."

She could not think of my middle name. She decided a few months later when my sister was born not to give her a middle name because it was too embarrassing to forget the names of her children.

So my sister has gone through life with no middle name. I remember that day. It is a historic landmark. I imagine you ran across some funny experiences that——

Mr. JONES. Yes, sir.

Senator PRYOR. Now, I am real worried about this. We talked to the General Accounting Office about the $1.1 million paid to the three unsuccessful firms. And this, to me, is troublesome. I am afraid we are going to establish a precedent. So once again, take me through this a little bit more slowly than you did in your opening statement, Dr. Keane.

Dr. KEANE. We had a very critical procurement on the line here. We are talking about the so-called family of minicomputers. As awarded, it was the largest contract ever let by the Census Bureau.

Senator PRYOR. All right. Now, how much was that contract?

Dr. KEANE. Up to $80 million. So call it an $80 million contract.

Senator PRYOR. All right.

Dr. KEANE. It was also the largest contract at that point that had been won by the winner, Digital Equipment Corporation, an $8 billion operation. I say that to put this into some context of how important this was.

As the procurement process unfolded, we got a protest. The protest was——

Senator PRYOR. Wait, excuse me. As the process was unfolding——

Dr. KEANE. In other words, taking its course, we got a protest on data access software, a technical term, but that is what it amounted to. And we got three firms in the protest process.

And now we are down to critical time here because we really desperately need these. We needed them for our agricultural and economic census' processing. We needed them for this—it is somewhere around $300 to $400 million investment in our automated geographic support system. These are important to that. We needed them for our dress rehearsal and we needed them for the prelisting operation. Any one of these is a vital need. Collectively they are just extraordinarily important to us. So these are contextual things but they are worth mentioning.

As that process continued, we found that it could go, likely would go to around 45 working days, or over a 2-month period of time. Because of our desperate need for those—and bear in mind, we are talking about a $2.6 billion investment here at risk—we, with our attorneys and the Commerce Department's legal counsel, decided that for that amount of risk taking, that it was prudent to settle.

And so we settled on the basis of up to $400,000 for each one of the three and we settled for less than that. So in other words, we could negotiate up to $1.2 million. We settled for $1.1 million.

Senator PRYOR. In the protest process—and I have very little understanding of it—these three firms who were disgruntled and protesting, could they have slowed you down for 45 days? How does that process work?

Dr. KEANE. The Board of Contract Appeals can suspend either on a limited or on a total basis. And we were being suspended, the process, on a total basis. That means freeze, nothing. So you see what was at risk here.

As part of the settlement, we had only 30 days to have the protestors submit their claims and for us to review them. Under normal circumstances, we would have had the Defense Contract Audit Agency review the protestors claims but they, the Defense Contract Audit Agency, usually takes about 120 days to do their work. So what would perhaps be a normal procedure and expectation was not really an open option as we saw it.

Senator PRYOR. You found yourself, Dr. Keane, it appears to me, in a time crunch. Wasn't the time crunch caused by—I do not want to say a dereliction of duties or negligence—by postponing the minicomputers purchases? Wasn't this time crunch basically caused by the Bureau?

Dr. KEANE. Well, it partially was within the Bureau, but it merits explanation. You try to wait as long as you prudently can before committing yourself on what kind of hardware you are going to get. We all know the speed of innovation. So there might be better equipment for us available. You also have to know how the configuration of somewhere between 450 and 500 offices, whether they be district offices or processing centers, where they are going to be and what the ratio would be from a district office to a processing center.

In other words, you want to know your field and processing configuration, as much as you can about that, before committing yourself to such a very large hardware procurement. So that is one consideration.

Another consideration is that we needed the delegation of procurement authority, and that took longer to get than we expected and hoped for. Of course, then we had the protest itself. But before that there were eight proposals—more than we thought we would likely get—and naturally we wanted to do a thorough job of reviewing those proposals to determine if they complied with our specifications.

In fact, it was the review of those proposals that caused the protest. It is somewhat of a paradox, perhaps, but it is the way that a prudent agency ought to go about business. Now we have learned from it, if I may add, and in case that is a question in anyone's mind, are you doing anything as a result of this experience: we are.

We have increased our procurement staff from four to eight and the four that we have had added are senior people. So that increases our capability and our know-how on this.

Senator PRYOR. Are you following all the government standards to validate the various computer programs developed for the minicomputers?

Dr. KEANE. The procurement regulations, are you speaking of, Mr. Chairman?

Senator PRYOR. The standards to test a computer system, which, I understand, are government standards. Have you followed those standards?

Dr. KEANE. In general, we have faithfully tried to do that. How well have we done, Bryant, in your judgment?

Mr. BENTON. For the most part we have done very well. Unfortunately, some programs have not followed the standards to the letter with the testing and validation, simply because of the time constraints. And as the Director has said, we have made up a lot of the time and have the vast majority of our programs available for testing in the dress rehearsal. If everything were to work perfectly, there would be no need for the dress rehearsal.

I would point out though, Mr. Chairman, that all of the processing for the 1990 census is not going to be accomplished on the family of minicomputers. All of the tabulation and publication processing, that is, the actual processing of the statistics that we publish, will not be done on the family of minicomputers. That is being done on the mainframes at headquarters.

So, when we talk about all of the computer processing for the 1990 census, and then we talk about the IRS experience of a couple of years ago, as being analogous; they aren't. There could be some analogy made with the minicomputer part of the processing but not with the mainframe. We are testing the machine and its software.

Dr. KEANE. If I might add just a point to that for emphasis, the whole focus of the GAO report, virtually the whole focus of the discussion you have ably conducted with the representatives there, virtually all of this discussion that has gone on about the procurement focuses on the Digital Equipment contract and that portion of our hardware and automation, which is in the neighborhood of 25

percent or perhaps less of the total automation in connection with the 1990 census.

So we are not talking about 90 percent of this, or 75, or even over half. We are talking about a relatively small portion of it, which is not to minimize its importance. We do not do that. We have learned from the experience and we welcome GAO's scrutiny. But we ought to keep it in that kind of perspective. I know you have voiced some concerns and your tones are worried and are we setting a precedent, but perhaps that would help ease your concerns somewhat.

Senator PRYOR. Are you going to be able to test in an operational setting all of the computers and all of the software before 1990? Are we given that assurance this morning?

Mr. JONES. Our plans, we have already tested a lot of the software we developed for the dress rehearsal in the dress rehearsal. Most of the operations involving the automated equipment took place after March 20, not prior to March 20. We now are in what is called our Beta Site over in Baltimore. We have a system set up to test all the software and we also have plans for quality assurance on that software before we deploy it out.

Senator PRYOR. Mr. Jones, or Dr. Keane, are we still in the mode of establishing 11 processing centers throughout the United States for the census? Is that right?

Dr. KEANE. We started out with a strong consideration of 11. We plan currently, and it is under discussion and review with our colleagues in the Department of Commerce, but it is not absolutely final.

Senator PRYOR. Have those been established?

Dr. KEANE. Yes. In fact, two of them are open, the one in Kansas City and the one in Baltimore, as just noted. We have got the space contract awarded for Jacksonville, Florida, and the contract for San Diego, California, is imminent. We will use Jeffersonville, Indiana, which, of course, is a permanent site for the Census Bureau, and we are in the early stages of finding space for Albany, New York, and Austin, Texas.

Senator PRYOR. I am not going to keep you any longer. In fact, I am going to adjourn in a moment and release you gentlemen so you can go back to the Bureau and get what I hope to be better organized, because I am getting very nervous about the census; I think a lot of people are. It is not that we do not have faith in you and your team. It is just that it is something like getting ready for a big football game. You get nervous as the game approaches and want to make sure that everybody knows the plays.

Senator Heinz has submitted a statement for the record, and I will ask that it be inserted at this point.

[The statement of Senator Heinz follows:]

OPENING STATEMENT OF SENATOR JOHN HEINZ

Mr. Chairman, members of the subcommittee, I want to thank you for allowing me this opportunity to address two extremely important questions regarding the 1990 census. Today's oversight hearing is quite timely, and I commend my colleagues for their efforts on behalf of the census.

Pending before the subcommittee are two measures which would help to ensure that the 1990 census treats all Americans fairly, and would make certain that those

who are eligible to vote are properly represented in Congress. The bills I refer to are S. 2013 and S. 2103.

At the outset, let me say that I believe these two measures, taken together, are essential to preserve the fundamental democratic principle of "one man, one vote" that our Constitution has reserved to our citizens.

Moreover, Mr. Chairman, we should be able to rely, absolutely, upon the findings of the census. It should be based upon sound methodology, and its results should be an accurate reflection of America's citizenry. Unfortunately, I fear that this will not come to pass.

The results of the decennial tabulation of the Nation's population will almost certainly change the face of Congress; 13 States, at least, are likely to see their representation change. Thus, the question of who is counted—and who is not—has very great significance.

Under its current policy, the census will not only include illegal aliens, but will exclude all military personnel—and their dependents—serving the United States overseas. Mr. Chairman, in my view this is a grave error. Not only will the citizens of many States be disenfranchised, but the census bureau will actually, as a practical matter, give a greater standing to noncitizens and confer a lesser standing on American citizens serving overseas. This is as unjust as it is illogical.

Unless Congress directs otherwise, the 1990 census will include 2 million illegal aliens, and exclude hundreds of thousands of American citizens. An illegal alien will be counted just as if he were a citizen. These individuals, who pay no taxes and have no right to vote, will gain representation right here in Congress. At the same time, those persons and their families who are U.S. citizens and are serving their Nation overseas—at considerable sacrifice—will lose the representation they would otherwise be entitled to. My home State of Pennsylvania, alone, has 23,000 military personnel in service overseas.

They are each going to be ignored by the upcoming census. I do not believe that there is any possible argument in favor of penalizing American servicemen and women by denying them representation, while granting representation to those who have entered this Nation illegally.

In an effort to correct this unfair situation, Senator Shelby and I introduced legislation, S. 2013, requiring the Census Bureau to determine the number of legal citizens residing in our Nation. Administering this requirement may be more work than simply counting heads, but I do not believe that the question of representation in Congress is so minor that we can afford to take the easy way out.

In addition, I have introduced S. 2103, to include overseas military personnel and their dependents in the census. It is my belief that their voices deserve to be heard.

Mr. Chairman, the reapportionment of congressional seats is a very serious matter. Steps must be taken to assure that Members of the House represent an equal number of citizens. To do less might violate the "one-man, one-vote" doctrine adopted by the Supreme Court over 20 years ago.

In closing, I urge my colleagues' favorable attention to S. 2013 and S. 2103, and I look forward to working with the subcommittee on these matters.

Thank you, Mr. Chairman.

Senator PRYOR. Senator Sasser of Tennessee desires to make a statement for the record in addition to submitting questions to the General Accounting Office and perhaps to the Bureau of the Census.

[The statement of Senator Sasser follows:]

OPENING STATEMENT OF SENATOR SASSER

Mr. Chairman, as all of us here today can agree, conducting a decennial census is huge and costly undertaking. It involves years of preparation, hiring of tens of thousands of employees, and now costs several billion dollars. Going back to the days when George Washington was President, each decade American Households across the Nation were surveyed so that the Federal Government could get a better understanding of the population trends that were characterizing and influencing the Nation.

While the Constitution originally required that a decennial census be taken to provide population counts as a basis for apportioning seats in the House of Representatives, today, the data provided by the census is used for a host of important purposes. In fact, the data provided by the census is absolutely essential in formulating allocation amounts for a variety of Government programs.

In the last several years, the Federal Government has entered into an unprecedented era of fiscal conservatism. Programs in all areas of the budget are being eliminated or pared back significantly. However, while less and less Government funds are being made available, more and more eligible recipients are requesting these funds. Therefore, of tantamount importance to the Federal Government is that the data used to create program formulas is as accurate as possible.

This is where the Decennial census plays such an important role. The census' compilation of key social, economic, and housing data plays an invaluable role in the Federal Government's process of structuring direct aid, housing and economic development programs.

With the census less than 2 years away, it is my sincere hope that the problems that are being encountered now in the preparation for the census can be worked out. We can not allow a situation to occur during the decennial census where untested or inefficient software could be allowed to cause potentially detrimental problems. It is imperative that the accuracy of the census data is not jeopardized because of administrative reasons or planning mistakes. Therefore, if it looks like contingency plans may be needed, then I believe the Census Bureau should start formulating some.

In conclusion, I would just like to reemphasize that it is my hope that the 1990 decennial census is able to be completed without any major problems. Only then, with accurate census data, can the Government find out which citizens and communities need the most help.

Senator PRYOR. I have nothing further. We thank you for coming this morning, and I do wish you the best.

Thank you.

Dr. KEANE. Thank you, Mr. Chairman.

Senator PRYOR. The hearing is adjourned subject to the call of the Chair.

[Whereupon, at 12:40 p.m., the Subcommittee adjourned subject to the call of the Chair.]

APPENDIX

United States General Accounting Office

GAO Testimony

For Release
on Delivery
Expected at
9:30 a.m. EDT
Friday
June 17, 1988

Status of the 1990 Decennial Census

Statement of
Richard L. Fogel, Assistant Comptroller General
General Government Programs

Before the
Subcommittee on Federal Services, Post Office
and Civil Service
Committee on Governmental Affairs
United States Senate

GAO/T-GGD-88-42

STATUS OF THE 1990 DECENNIAL CENSUS

SUMMARY OF STATEMENT BY
RICHARD L. FOGEL
ASSISTANT COMPTROLLER GENERAL
GENERAL GOVERNMENT PROGRAMS

Conducting a decennial census is a mammoth and costly task. For the 1990 census, estimated to cost about $2.6 billion, the Census Bureau will hire over 300,000 temporary employees to staff about 450 temporary offices. In planning for the 1990 census, the Bureau analyzed problems experienced in past censuses to identify the causes and work towards viable solutions. These problems included: delays in data dissemination; slow, error-prone clerical operations; difficulties in producing timely and high-quality maps; and cost escalation. To help address these problems in 1990, the Bureau decided to automate map production and management information systems and process census data concurrently with collection activities. A critical strategy in the Bureau's attempts to automate was the purchase of several hundred minicomputers.

While we were encouraged by the movement to automate, the Bureau may not be making sufficient and timely progress and, as a result, may not take full advantage of the opportunities that automation offers. For example:

-- The delayed minicomputer procurement has reduced the time needed to develop and test software for the 1990 census, posing a risk that automated procedures will not function as intended. In addition, the failure to plan properly for and manage the procurement resulted in the Bureau paying $1.1 million to settle a bid protest.

-- The Bureau has not systematically validated the software for the minicomputers under census-like conditions in the dress rehearsal. As a result, the dress rehearsal's value has been diminished, and changes will have to be made during actual census operations.

-- The Bureau has experienced delays and difficulties in completing its geographic support system, which delayed map production and significantly increased costs.

-- Late map production has forced the Bureau to postpone the development of address lists for suburban and rural areas--a critical early census operation.

The Bureau will be able to conduct the 1990 census and provide the counts to the President by the statutory deadline. But the census will not be as cost efficient as it could have been.

Mr. Chairman and Members of the Subcommittee:

I am pleased to appear here to discuss our observations on the Bureau of the Census' preparations for the 1990 Decennial Census.

Conducting a decennial census is a mammoth and costly task, involving over 300,000 temporary staff and about 450 temporary offices. According to current Bureau estimates, the 1990 census will cost $2.6 billion, as compared to $1.1 billion to complete the 1980 census.

Early in the decade the Bureau analyzed the problems experienced in the 1980 census. These problems included: delays in data dissemination; the use of slow, error-prone clerical operations; difficulties in providing timely and high-quality maps; and cost escalation. This analysis identified opportunities for improving census operations, particularly increasing the use of automation. However, late decisionmaking and procurement delays have diminished the potential effectiveness of the Bureau's automation initiatives.

First, I would like to focus on problems the Bureau has experienced in procuring and testing minicomputer systems to be used to carry out critical census activities. As discussed in our June 14, 1988, report, DECENNIAL CENSUS - Minicomputer

Procurement Delays and Bid Protests: Effects on the 1990 Census (GAO/GGD-88-70), such problems resulted in the payment of $1.1 million to settle a bid protest and, most importantly, have reduced the time available to develop and test software to process census data and manage operations. This also has diminished the value of the dress rehearsal, which is the Bureau's last major opportunity to assess and fine-tune the systems and operations to be used in 1990.

Secondly, I will discuss our concerns about problems the Bureau is experiencing with implementing the first 1990 Decennial Census operations. Problems and delays occurring in such critical early activities as developing address lists for suburban and rural areas are reminiscent of problems that occurred in 1980. They could ultimately have repercussions on later census operations and adversely affect the quality and cost of the census.

MINICOMPUTER PROCUREMENT PROBLEMS RESULT IN DELAYS AND INCREASED COSTS

Let me first address the minicomputer issue. A key component of the Bureau's plans for the 1990 Decennial Census involved the increased use of automation to improve the accuracy and timeliness of census activities. To help accomplish this, in January 1986 the Bureau decided to procure about 550 minicomputers at a maximum potential cost of $80 million. The

vast majority of the minicomputers were expected to be used in the 1990 Decennial Census for such purposes as checking in questionnaires, keying address and questionnaire data, preparing management information reports, and generating and updating automated maps.

Before the minicomputer contract was awarded, a bid protest was filed with the General Services Administration Board of Contract Appeals by three offerors who contested the Bureau's determination that their proposals did not adequately respond to technical provisions of the request for proposals (RFP). After a hearing, the Board temporarily suspended Commerce's procurement authority.

Rather than contesting the protest, Commerce and the Bureau decided to settle the bid protest by making a cash settlement to the three offerors. Commerce and the Bureau felt they could not afford the additional time required for the Board to decide the protest, regardless of its merits. Commerce also discovered a procedural flaw in the procurement process that it believed would have jeopardized the government's case.

The settlement agreement reached on the minicomputer protest provided that each of the three offerors would receive up to $400,000 for proposal preparation and protest costs after submitting appropriate supporting documentation. After making a

cursory review of the documentation submitted, the Bureau paid a total of $1.1 million to the three offerors, which represented all claims submitted by each offeror up to the $400,000 maximum.

Although the concern for time was not without merit, the cash settlement could have been avoided if the Bureau had not initially created its own management dilemma by failing to plan properly for and manage the minicomputer procurement. Incomplete and untimely planning for the 1990 Decennial Census' organization and procedures prevented the Bureau from fully identifying, documenting, and planning for its automatic data processing needs. This resulted in a late decision to procure the minicomputers and contributed to an additional 6-month delay in the procurement process.

In addition to the cash payment, the problems in the minicomputer procurement (1) overburdened the Bureau's understaffed procurement office, contributing to delays in obtaining other needed equipment for the census; and (2) contributed to the Bureau's decision to lease additional computer capacity because the minicomputers were not available when planned.

LACK OF QUALITY ASSURANCE PROGRAM FOR COMPUTER SOFTWARE IN DRESS REHEARSAL

A principal objective of the dress rehearsal was to conduct a full-scale system test of the minicomputers, under census-like

conditions. The minicomputer contract, however, was not awarded until May 1987, which was several months after the start of the dress rehearsal. As a result the equipment was not available for use in initial dress rehearsal operations, such as keying addresses and updating automated maps.

When the new minicomputer system became available for later phases of the dress rehearsal, it could not be effectively utilized because of insufficient time to develop and fully test software. Although our review to date has found that Bureau officials have identified and corrected many software errors, they have not systematically validated, verified, and tested the software in accordance with recommended federal standards.

I will now discuss some of the problems the Bureau has experienced with its newly automated management information system in the dress rehearsal.

-- District offices experienced problems with the automated applicant file, which is supposed to identify the status of all job applicants and their availability for work. Because the reports failed to accurately reflect applicant status on a timely basis, supervisors lost confidence in the system and did not use it for making hiring decisions. This file also serves as the master file for employees and is used to generate

production reports. The problems with the file precluded district office officials from getting accurate information on employee production and turnover they needed to efficiently manage operations.

-- Automated staff performance reports used to manage follow-up activities and calculate enumerator bonuses were limited because of missing data and inaccuracies. Consequently, to avoid improper payment, district office personnel had to partially rely on manual records to calculate bonuses.

-- Reports used to assess training needs and performance of clerks editing questionnaires were not used as a basis for taking personnel actions because supervisors were not confident that the information provided was accurate.

Using software before it is fully tested is risky and can result in the systems not functioning as intended. In the 1986 pretests for the 1990 census, the Bureau did not allow sufficient lead time to adequately test software programs for its previous computer system. As a result, many software programs initially did not work for some operations and had to be modified. To resolve these problems, headquarters staff provided technical assistance to the pretest sites. If similar problems occur

during the decennial census, however, sufficient staff to provide assistance may not be available to support several hundred locations across the country.

Similar problems contributed to the Internal Revenue Service's (IRS) much-publicized difficulties in converting to new automated equipment in 1985. IRS did not establish an adequate quality assurance program, and some programs ran inefficiently while other programs failed to meet users' needs. This contributed to inaccurate notices to taxpayers, untimely responses to inquiries, and increased interest paid by the government on delayed refunds.

Without sufficient time to adequately test the software, problems will have to be resolved during early census activities, which could jeopardize the quality of census data and lead to increased costs. Because of such risks we recommended in our minicomputer report that the Census Bureau prepare a formal contingency plan in the event the minicomputer system does not operate properly. This plan should include provisions to use available mainframe capacity and, if necessary, do some operations manually.

DELAYS AND CHANGES IN PRELISTING

Next let me discuss some concerns we have about changes and delays in the Bureau's development of address lists for suburban

87-468 0 - 88 - 3

and rural areas. Address lists are important because they are used to deliver census questionnaires and serve as a control list of nonrespondents for follow-up activities. Originally, the Bureau planned to canvass suburban and rural areas, called prelisting, to develop address lists for an estimated 45 million households starting in February 1988.

The planned starting date for the 1990 prelist operation was a year earlier than in the 1980 census. This additional time was provided as a contingency because of the delays experienced in completing the prelist for the 1980 census. In that census the Bureau cancelled a planned independent Postal Service check of rural and suburban addresses and compensated by initiating an expensive recanvassing procedure.

Primarily because of late map production and concerns about the ability to develop good mailing addresses, the Bureau changed its prelist plans. Automated files needed to develop the maps are being generated by the Bureau's automated geographic support system, which the Bureau estimates will cost about $371 million for the 1990 census, or about twice its 1982 estimate. The Bureau significantly underestimated the computer capacity requirements and the time needed to prepare software for these automated files. These problems were compounded by the late acquisition of the minicomputers, which were to be used to prepare computer tapes needed to print the maps.

The Bureau changed its plans for prelisting in the following three ways:

-- First, the Bureau decided not to prelist 2 million housing units. Instead, the Bureau will enumerate these units using its traditional door-to-door canvass enumeration procedure, without the aid of a control list. This could result in a less accurate census count.

-- Second, it deferred the prelist of 10.5 million housing units to the fall of 1989, representing a minimum 1-year delay. For these units the Bureau, rather than the Postal Service, will deliver the questionnaires. No independent Postal Service address check is planned for these units. A Bureau study of its delivery of questionnaires in the 1986 pretest did not reveal positive results. The study commented that some housing units did not receive a questionnaire and some received two questionnaires. The study stated, "The actions of the enumerators resulted in gaps in coverage, misdirected mail, and increased nonresponse workload."

-- The third change involved postponing for 4 months, from February 1988 to June 1988, the start of prelist operations for the remaining 32.5 million units. At this point, it is too early to speculate what effect this delay will have on prelist operations.

CHANGES IN SPACE REQUIREMENTS

Finally, I would like to make some brief comments on the Bureau's space acquisition. In 1986, when the Bureau was proposing to use 10 to 15 processing offices, we were concerned that this significantly higher number of offices, compared to the 3 used in 1980, would create management problems and would increase the cost of the census. In 1987, the Bureau revised its estimate for the number of processing offices to 11. The Bureau is currently considering using seven offices, two of which have been opened. The Bureau stated in a recent appropriations hearing that the final number will be reflected in its fiscal year 1990 budget. We are concerned that this decision has not been finalized at this late stage of the census cycle. Changes in the number of processing offices will affect census workflows, operations, and the use of automation. This is but another example of untimely decision-making that we have noted throughout the 1990 Decennial Census planning process.

- - - - - -

Overall, we believe that the Bureau will be able to conduct the 1990 census and provide counts to the President by the statutory deadline. However, we are concerned that the lack of time to develop and test software for the 1990 census, particularly under census-like conditions in the dress rehearsal, could adversely affect the accuracy and increase the cost of the 1990 census. Because of this situation I want to reemphasize the importance of our recommendation that the Bureau prepare a contingency plan in case the minicomputers do not operate as intended.

This concludes my statement, and I would be happy to respond to any questions.

QUESTIONS SUBMITTED BY SENATOR PRYOR

1. The Department of Commerce and the Bureau of Census paid $1.1M to 3 offerors because they could not afford the additional time required to resolve the bid protest, regardless of the merits of the protest. Should Commerce and the Bureau have paid the amount they did? Given the lack of clear definition regarding appropriate claims to the government, what changes are needed, either legally or administratively, to correct the problem?

A1. As mentioned in our report, we believe that the Bureau could have avoided the cash settlement if it had not created its own management dilemma by failing to plan properly for the procurement, by starting the procurement process late, and by not adhering to proper procurement procedures. These management deficiencies created serious time pressures that persuaded the Bureau to opt for a cash settlement. The maximum $400,000 ceiling for each offeror agreed to in the settlement was determined by negotiation. We are concerned about the amount of money paid in the settlement, especially in light of the lack of an adequate review of claimed costs by Commerce and the Bureau. However, again, as stated in our report, in the absence of clear definitions of what constitutes allowable bid proposal and preparation costs and protest costs, we are not in a position to assess the appropriateness of the amount paid.

Regarding possible recommendations for legal or administrative changes, I must first emphasize that our work was limited to this single procurement. Because we do not have sufficient information on the extent of the problem across the government, our ability to identify the need for or recommend possible remedies is obviously limited. However, based on our review of Census' minicomputer procurement, a number of ideas come to mind that might be worthy of further consideration. They include: establishing, in regulation, a clear definition of what constitutes allowable bid proposal and preparation costs and protest costs; requiring offerors to certify that any claimed costs are appropriate under this regulatory definition; incorporating an audit clause in settlement agreements permitting the recovery of amounts paid in error or based on false or inaccurate certifications; and, finally, establishing dollar limits on amounts that agencies can pay in settling protests.

2. What is your overall assessment of the way GSA, Commerce and the Bureau handled this protest? As custodians of taxpayer dollars, do you feel they exercised sound management judgment in carrying out their responsibilities?

A2. We believe that the settlement could have been avoided if the procurement had been properly planned for and managed. Unquestionably, the Bureau helped create its own predicament. Because of their concern for time,' Commerce and Bureau officials made a management decision to settle the protest and proceed with the procurement rather than to pursue the protest on its merits. As pointed out in our report, Commerce and the Bureau agreed to the settlement even though officials continued to believe that the three proposals were unacceptable. This situation is obviously troublesome: as a general rule agencies should not settle protests based on the desire to proceed with a procurement suspended by judgment of the GSA Board of Contract Appeals. With respect to the GSA Board of Contract Appeals' handling of this protest, we are not in a position to question the Board's judgments which are based upon evidence presented by the parties to that body.

3. In your report you referred to the problems this nation experienced in 1985 because the Internal Revenue Service did not effectively manage the replacement of its service center computers. The GAO report on the IRS situation noted that because of the problems IRS encountered in introducing the new service center computer system, IRS' operational costs increased as productivity declined, the government's interest payments to taxpayers increased as refunds were delayed, and IRS' image waned as the public became increasingly frustrated. Needless to say, the situation in 1985 was damaging and costly for the IRS and the taxpayer. Based on the findings of your work at the Bureau, the nation and the taxpayer have already had to pay far more than it should have for gross mismanagement and, unfortunately, the costs are continuing to increase. What will be the effect of this mismanagement on the 1990 Decennial Census?

A3. Conducting a decennial census is a major undertaking, involving hundreds of thousands of temporary employees and hundreds of temporary offices. Good management is essential for a cost efficient and effective census, particularly in view of the importance of census results in many aspects of the public and private sectors. Given the complexity and scope of census

operations and procedures, there are clearly many areas that are vulnerable to poor management practices. Based upon our review of the Bureau's management of the minicomputer procurement, the most immediate and obvious effect is reduced cost efficiency. Management deficiencies have already resulted in the Bureau spending millions of dollars more than it should have for ADP equipment. This includes both the cash payment to settle the protest and an additional several million dollars to lease time on mainframe computers. In addition, ADP planning and procurement management deficiencies have already prevented the Bureau from developing and testing software under census-like conditions. This could lead to the minicomputers not functioning as intended and contribute to a further reduction in the cost efficiency and effectiveness of the census.

4. GAO and the Bureau appear to differ on the progress being made in preparing for the 1990 Census. For example, you cite that the minicomputers and software were not fully tested during the dress rehearsal and would not be tested before the final implementation of the census; critical map production is seriously delayed; and the address list is being developed without a quality assurance check. The Bureau states otherwise. I am confused. Who is right and why is there such a wide difference?

A4. We emphasized that the testing would not be conducted under census-like conditions in the dress rehearsal. We also maintain that some software will not be tested before the prelist activity began which was in June 1988. We consider the prelist as part of the actual census. The Bureau might be limiting its position to the enumeration itself which starts April 1, 1990.

We maintain our position that map production is significantly behind schedule. As a partial remedy to this problem, the Bureau has delayed and deferred portions of its address list development activity. For that portion of the address list development that was deferred, the Bureau will not employ the independent postal address check prior to Census Day. For these housing units the Bureau will deliver the questionnaires, therefore it contends it will not need the Postal Service address check. However, the Bureau's experience in the 1986 test census, when it did use the proposed self delivery of questionnaires, was not successful. As we cited in our statement, a Bureau study commented that "the actions of the enumerators resulted in gaps in coverage, misdirected mail, and increased nonresponse workload."

5. As of February 1988, the ADP needs for the 1990 Decennial Census still had not been decided. For instance, one of the principal reasons for obtaining the minicomputers was to maintain the address control file. However, it sacked that idea. Furthermore, the places where the computers were to be located and, therefore, the basis for determining the number of computers needed, has changed and apparently may change again. What is your assessment of the quality of the Bureau's planning of ADP needs for the 1990 Decennial Census and what effect will any deficiencies in that planning have on the overall quality of the 1990 Census?

A5. We have been very concerned for the past several years about the Bureau's ADP planning for the 1990 census. We have expressed these concerns in several reports including our recent report on the procurement of the minicomputers. Some excerpts from past reports will demonstrate these concerns. In The Census Bureau Needs to Plan Now for a More Automated 1990 Decennial Census (GAO/GGD-83-10, January 11, 1983) we commented "Although the Bureau has expressed interest in increased automation, its initial planning efforts for the 1990 census need better coordination and development, and to provide for the time needed to acquire and test new equipment. The Bureau needs to properly organize its efforts and commit resources or time will overtake the opportunity for increased automation."

In Status of Plans to Computerize Questionnaire Data (GAO/GGD-86-76BR, May 1986), in regard to the use of optical mark reader (OMR) technology, we commented "We are particularly concerned with the Bureau's planning efforts for the possible use of OMR technology. We believe the Bureau's decision to discontinue consideration of OMR technology was influenced by its late start in detailed planning, reluctance to revise the questionnaire form, and a slow procurement process. * * * Because of its actions, the Bureau may have excluded a potentially useful option without fully exploring it."

In Automation of the Geographic Support System (GAO/GGD-87-75BR, May 1987) we made several comments concerning the Bureau's management and procurement actions. For example, the report commented that "The delay in the procurement of the first computer work stations, needed to begin building the automated files, amounted to about 18 months from late June 1982 to December 1983. According to Bureau officials, the delay occurred because inadequate documentation was

initially submitted to the Department of Commerce and because the procurement process took longer than expected."

These lapses in ADP planning and management will reduce the overall cost efficiency of the 1990 census and could eventually affect the quality of the census data.

UNITED STATES DEPARTMENT OF
COMMERCE
WASHINGTON, D.C. 20230

BUREAU OF
THE
CENSUS

THE STATUS OF PLANS FOR THE 1990 CENSUS OF POPULATION AND HOUSING

DR. JOHN G. KEANE
DIRECTOR, BUREAU OF THE CENSUS

UNITED STATES SENATE
SUBCOMMITTEE ON FEDERAL SERVICES, POST OFFICE,
AND CIVIL SERVICE

JUNE 17, 1988
WASHINGTON, D.C.

INTRODUCTION

Mr. Chairman, I will report to you today on plans for the 1990 Census of Population and Housing.

The 1990 census will be the 21st decennial census of the United States. It also will be the Nation's Bicentennial census. The first census was conducted in 1790 under the direction of the Secretary of State, Thomas Jefferson. George Washington was President. This city that bears his name had not yet been planned. And Arkansas, Mr. Chairman, was still part of Spanish territory.

So the census is practically as old as the Nation itself. Article 1, section 2 of the Constitution requires a decennial census to provide population counts as a basis for apportioning seats in the House of Representatives. Over time, census data have come to be used for many other important purposes. These include drawing legislative districts, allocating government funds, and planning at all levels of government and in the private sector.

Census Day for the 1990 census is April 1, 1990--less than 2 years from now. But as I will describe shortly, major plans are complete and we have begun preparatory operations. Our current cost estimate for the 1990 census is $2.6 billion.

Today, I will discuss six topics: (1) the status of planning for the census, (2) the preparatory operations that have begun or will begin soon,

(3) the census questionnaire content and sample design, (4) plans for increased automation in the census, (5) plans for promoting the census and building public support, and (6) the adjustment issue for the 1990 census.

PLANNING

One--planning.

We are now conducting our Dress Rehearsal censuses, which are the final dry runs of planned census operations for 1990. We began formal planning for the 1990 census in October 1983. We have conducted more major tests than previously. The Dress Rehearsal is the capstone of our planning efforts and was preceded by 5 years of consultations with data users and formal tests of alternative procedures and questionnaire content.

We consulted with a wide range of data users, including minorities, planners and academics, business leaders, representatives of private organizations, state and local officials, and Federal agencies. We have also kept members of Congress informed of 1990 census plans through more than 30 hearings since 1984. We conducted seven major test censuses and a number of smaller tests. Based on these consultative efforts and tests, we designed a 1990 census plan that we are now implementing in the Dress Rehearsal.

We are conducting the Dress Rehearsal censuses in three sites representative of the kinds of enumeration conditions in which we will conduct the 1990 census. St. Louis City, Missouri, is a large urban area with a high concentration of minorities, low-income persons, multi-unit housing, and so on. Fourteen counties in East Central Missouri contain one mid-size city (Columbia), a number of

smaller cities and towns, rural areas, colleges, a major military base, and resort areas. Eight counties in eastern Washington contain some small cities and towns, but also remote, sparsely populated areas and two American Indian reservations.

Census Day for the Dress Rehearsal was March 20. Most data collection work has been completed, but some follow-up work and data processing continue on schedule.

The Dress Rehearsal has proceeded fairly smoothly. There have been no major problems to date that would cause us to change our plans for 1990. We have, as expected, identified various refinements to operations and systems, but this is why we conduct tests and dress rehearsals.

PREPARATORY OPERATIONS

Two--preparatory operations.

Major preparatory operations for the 1990 census have already begun and will accelerate this year and next.

Addresses

One of the major preparatory activities is the compilation of an address list that we will use to control the delivery and return of questionnaires in 1990. We will enumerate about 95 percent of the housing units by mail-back procedures. With these procedures, we compile an address list in advance of the census, mail or deliver questionnaires to each address, and follow up on those addresses for which questionnaires are not returned. This way, we can complete most of the census by mail and concentrate our

resources on the hard-to-enumerate follow-up cases. The success of these procedures depends in large part on an accurate address list.

For the more urban areas of the country, we purchased about 56 million addresses from commercial vendors under contracts awarded in February 1988. We currently are assigning geographic codes to these addresses by computer. We have begun listing addresses for the more suburban and rural parts of the country, where lists either cannot be purchased or cannot be assigned geographic codes by computer. This operation, which we call "prelist," will be conducted in two phases. The first phase, to be completed by the end of the year, will list about 32 million addresses. The second phase, which we will conduct in the fall of 1989, will list another 11 million addresses.

Our experience shows that updates by census enumerators and postal workers are required to produce a complete address list for the census. Thus, we contract with the U.S. Postal Service to conduct several checks of the lists for completeness and accuracy and, in addition, have our staff conduct checks. One of these checks is the "precanvass" operation, an updating of the addresses in urban areas, which we will conduct in 1989. We expect that when we are through with all of our address-compilation operations that the list will contain an address for almost every housing unit in the areas where we will conduct the census by mail.

Mail carriers will deliver the questionnaires to housing units not in mail-back areas--primarily the remote, sparsely-populated areas. But we will ask householders to complete their questionnaires and hold them until an enumerator visits to pick them up.

Geography

A second major preparatory activity, which has been ongoing since 1984, is the creation of an automated geographic support system. We call this system TIGER, which stands for Topologically Integrated Geographic Encoding and Referencing.

The key word in the TIGER acronym is "integrated." TIGER will integrate into one file all the geographic information that was produced in separate operations in 1980. This will allow us to produce the geographic products and services for 1990 from one consistent data base, and will help us avoid some of the delays and inaccuracies we experienced in 1980. Having computer-driven plotting devices generate high-quality maps that match the geographic areas in our tabulations will be a big improvement over the clerical operations of the 1980 and earlier censuses.

TIGER has a large data base with a computer-readable or "digital" map as its foundation. As a start to creating the TIGER file, we and the U.S. Geological Survey entered into an interagency cooperative agreement for the creation of the initial cartographic data base. Then, we updated this initial digital map base with information about new streets and current boundaries that was gathered from state, county, and local officials to make the maps useful for Census Bureau activities. While we had some delays earlier, the computer-driven map plotters we purchased earlier this year are producing the maps our enumerators will use in the upcoming prelist operation.

6

Questionnaires

A third major preparatory operation is the printing of census questionnaires.

Questionnaire printing is one of our most important activities for the census. We cannot conduct the census without questionnaires. We will require approximately 250,000,000 short and long forms, including Spanish-language and other special-purpose questionnaires. Quantity is not our only concern. The printing must meet quality standards so that the questionnaires, when filmed, can be read by our optical scanning devices. About 100,000,000 questionnaires will be assembled, along with instruction guides and return envelopes, into address-labeled mailing packages.

Questionnaire printing must begin in January 1989. Delays would push back other related preparatory activities and could mean that we would not be able to deliver census questionnaires to housing units as scheduled. Obviously, that would seriously jeopardize our ability to meet the legal mandate of delivering apportionment counts to the President by December 31, 1990.

To begin printing in January 1989, the Government Printing Office (GPO) must begin the procurement process several months prior to that. We plan to submit procurement documents to the GPO in early September 1988. These documents will contain detailed specifications for the design of the questionnaires and will specify the required quantities of short- and long-form questionnaires.

To meet this September date, we have devised a schedule for final review of the content and sample design to be conducted this spring and summer. The final questionnaires will be submitted to the Office of Management and Budget (OMB) next month for clearance.

87-468 O - 88 - 4

Space Acquisition

A fourth major preparatory activity is the acquisition of space for temporary offices to manage census data collection and processing. In all we will require about 6 million square feet of space for regional census centers, for district offices that the regional census centers will manage, and for processing offices. The regional census centers and district offices are responsible primarily for collecting the data. In the processing offices, the census questionnaires will ultimately be converted to computer-readable format so that we can produce data products.

The regional census centers are located in the same cities where we have our permanent regional offices, plus San Francisco. Eleven offices are operating now. We have awarded space contracts for the New York and San Francisco offices. New York is scheduled to open next month. San Francisco is scheduled to open in October.

The district offices will open on a staggered basis. For example, 127 of the 400+ offices will open in the winter/spring of 1989. We have begun space procurement for the first offices.

Two of the processing offices are open now. We have awarded contracts for space for two others.

QUESTIONNAIRE CONTENT AND SAMPLE DESIGN

Three--the content of the census questionnaires and the sample design.

As in recent censuses, we will have two primary questionnaires--a short form and a long form. The short form will contain the basic population and housing subjects we ask of all persons and housing units. The long form will contain these same basic subjects plus additional population and housing items asked of only a sample of persons and housing units. We refer to the basic subjects that appear on both the short and long forms as the 100-percent subjects. We refer to those that appear only on the long form as the sample subjects.

Content

As required by Title 13, U.S. Code, I reported to you on March 31, 1988, on the content of the questionnaires for the 1990 census.

The subjects included in that report differed somewhat from those provided a year earlier. During the past year, we continued our analysis and also held discussions with the OMB. These discussions resulted from the OMB's review of the 1988 Dress Rehearsal questionnaires based on its authority and responsibilities under the Paperwork Reduction Act of 1980. The discussions resulted in revising the housing portion of the short- and long-form questonnaires and the sample design to: (1) meet the statistical needs of the Nation, (2) comply with the goals established by the Paperwork Reduction Act, and (3) increase the usefulness of data collected and published by the Federal Government.

The 1990 short form will contain the following population subjects: name, household relationship, sex, age, marital status, race, and Hispanic origin. And the following housing subjects: the number of units in the building; whether the housing unit is owned or rented (tenure); number of rooms in the housing unit; a screening question to determine if the value of the unit is affected by its being on 10 or more acres or containing a business or office; value of the unit, if owned; and, if rented, amount of rent paid and whether meals are included in the rent. The short form also will contain coverage questions designed to determine if the respondent listed all appropriate persons on the questionnaire. In addition, it will include several questions about vacant housing units that will be answered primarily through observation by our enumerators.

The long form will contain the previous items plus detailed social, economic, and housing inquiries.

Sample Design

Now, I will briefly discuss sample design. In 1980, the long form went to one in six housing units, except in places with fewer than 2,500 people; there, one in two housing units were included in the sample. We designed the larger sampling rate for small places to produce more accurate data, particularly income data, for small places. Using a similar design for 1990 would have meant about 19.3 million housing units would have been included in the sample.

For the 1990 census, we are proposing a sample size of about 17.7 million housing units. We are determining the final criteria to be used to allocate this sample to various areas. We are studying the precision that will

result for census data tabulated for many different geographic areas and population groups. We want the 1990 sample to produce quality data for population subgroups including the elderly, low income working persons, Blacks, Hispanics, Asians and Pacific Islanders, and American Indians and Alaska Natives.

AUTOMATION

Four--automation.

The 1990 census will be far more automated than the 1980 census or any previous decennial census. A principal aim of planning for 1990 has been to automate many of the time-consuming and labor-intensive clerical tasks of the 1980 and previous censuses; and to begin converting data on the questionnaires into computer-readable format several months earlier than we did for 1980.

Traditionally, census data collection and much of the census data processing have been paper- and people-intensive tasks. The use of automated equipment can help us deal with the mountains of paper and the thousands of clerical tasks in a much more accurate and controlled way.

Automated Operations

The TIGER System, which I described earlier, is an important element in our automation plans. It is doing all the things we expected of it for the 1990 census.

We also are automating our address list so that we can key updates to it on our computers concurrent with the data collection operation. With an automated address control file, we can print unique bar-codes on the questionnaires and keep track of them using electronic equipment. In this way, we can readily ascertain the enumeration status of a housing unit and print out a list of addresses for which no questionnaire has been returned. We will follow up on these housing units.

Since the automated address control file allows us to keep track of individual questionnaires, we can process the questionnaires on a flow basis. This means that questionnaire processing will start concurrently with data collection, at least 4 months ahead of the 1980 schedule. In 1980, the conversion of data to machine-readable form did not begin until the district offices completed all enumeration, edit, and followup activities and shipped all their questionnaires at one time to a processing center. The earlier start for 1990 census processing should make it possible to release data products sooner.

We are automating several other important census operations. For some areas of the country, we will use computer review to replace the clerical check of questionnaires for accuracy and completeness. We are automating the operation that assigns computer-readable codes to written answers on the questionnaire. We are developing an automated management information system that will help us meet critical deadlines in planning the census and monitor the cost and progress of census operations. And, we will have computers in the local temporary offices to report cost and progress, to keep track of payroll, to organize job applicant information, and to control the field follow-up work.

Family of Minicomputers 12

To conduct an automated census under the scenario I have just described requires a good deal of computer equipment. There are dramatic changes involved in moving from a census with large-scale clerical operations to one using significantly increased automation. We have had to balance the need for adequate time to plan and test these new departures with the need for adequate procurement lead times.

Our procurement activities are now progressing as planned and we foresee no major problems. In June 1987, we completed award of a contract to the Digital Equipment Corporation for a "family of minicomputers." The first computers have been delivered to support our census operations, including the 1987 Economic and Agriculture censuses, the automated geographic support system, and the 1988 decennial census Dress Rehearsal and prelist.

We disqualified several companies from the "family of minicomputers" procurement because their proposals did not meet the requirements for data access software. The companies contended that their software products did meet the requirements and filed a protest to the Board of Contract Appeals at the General Services Administration. The Board suspended the procurement for 45 working days (9 weeks). The suspension was not made based on the merits of the protest but on the Board's determination that the interests of the United States in proceeding with the procurement were not so urgent and compelling that they could not await the outcome of the Board's decision within the 45-day time frame. We settled the protest out of court because a delay of 9 weeks would have precluded our using the minicomputers for the Economic and Agriculture censuses or in the Dress Rehearsal censuses. We believe that the benefits of proceeding with the procurement far outweighed the cost of the settlement.

We did lose some time because of the delay in procuring the minicomputers, but we have been working hard to get back on schedule. For example, after delivery of the first minicomputers, we undertook accelerated development of software programs for the Dress Rehearsal and we established a special Systems Support Group to install and test the hardware. This was done successfully. Data keying, editing, address file maintenance and updating were all performed on the family of minicomputers in the Dress Rehearsal. We are now in a favorable position for timely development of reliable 1990 systems. All software will be tested before 1990. This testing will involve quality assurance procedures at headquarters and further testing by our Systems Support Group (housed at a National Support Center in our Baltimore processing office.) The Systems Support Group will distribute all 1990 software to our field and processing offices in a standardized fashion.

PROMOTION

Five--census promotion.

Public cooperation is the cornerstone of a successful census. Without public cooperation, we could not have a complete count and be able to produce accurate data in a timely manner.

A creative and ambitious promotion campaign is essential if we are to maintain, and hopefully increase, public cooperation. One of the important goals of our promotion campaign will be to achieve a high mail-return rate. The other important goal is to encourage everyone to include themselves in the census so that it will be as complete and accurate as possible. Our promotion campaign will be designed to emphasize the importance of being in the census and to ease concerns about census confidentiality.

For the 1990 census, we plan an extensive, multi-faceted promotion campaign.

Advertising

As for each census beginning with 1950, we have again signed a contract with the Ad Council to pursue a public service advertising campaign. The Ad Council regularly handles major mass-media advertising campaigns for government and other nonprofit programs. Using the Ad Council and its chosen advertising firm (Ogilvy and Mather, Inc.) led to a very successful promotion campaign in 1980. The Ad Council has again chosen Ogilvy and Mather, Inc. to develop the national promotional messages for television, radio, newspaper advertisements, and su[illegible] "out-of-home" media as billboards and transit posters. For the first time, we have also asked the Ad Council to choose minority advertising firms to tailor the national message or develop new messages to reach minority populations. The Ad Council has chosen the Mingo Group, which has experience in developing messages for Blacks, and Castor Spanish International, which has experience developing messages for Hispanics. The Ad Council is also seeking to recruit firms that have experience in marketing to Asians, Pacific Islanders, American Indians, and Alaska Natives.

Organizations

We will work through key national and community organizations to get the active support of their members.

New for 1990, we are asking major national organizations to adopt a pledge to actively support the census. We work with community organizations through one-on-one contacts between our community awareness specialists

and the leaders and membership of the community groups. We are increasing the number of census awareness specialists and hiring staff earlier than for the 1980 census.

Governments

Outreach to other Federal agencies, the Congress, state governments, and local governments will be a key element of our promotional program. In this regard, I want to mention the Mayors Cooperation Program. We are holding a series of one-on-one meetings with the mayors of some 350 cities to discuss mutual concerns about the 1990 census and possible joint efforts for encouraging a city's population to be counted in 1990. To assure ongoing contact between the cities and the Census Bureau staff, we will ask the mayors to appoint high-level liaisons. We are committed to working with the cities to prevent foreseeable problems in the 1990 census and to be able to solve any unforeseen ones as they arise.

We will ask the highest elected official in every jurisdiction in the country to set up a committee of local leaders or use existing city means to generate local publicity about the census. We believe that this local publicity is an essential complement to the other programs and projects we are initiating because different themes or activities will be effective in different areas.

Private Sector

The private sector can also play a key role in promoting the 1990 census. We will seek the involvement of businesses and nonprofit organizations in publicizing the census to their employees or on their products. In some

cases, we will seek funding from businesses to carry out selected promotional projects.

Religious Organizations and Schools

Religious organizations will be asked to encourage their members to participate in the census or, in some cases, to provide assistance in filling out the questionnaire. We plan to involve all denominations and national and local religious organizations in this project. We have already held important meetings with the Bishops Committee on Hispanic Affairs of the U.S. Conference of Catholic Bishops, with leaders of the National Council of Black Churches, other Black denominations, and Black fraternal orders.

We are developing a school project that will provide each elementary and secondary school in the country with a set of reproducible lesson plans for classroom instruction. These lesson plans are geared toward making students aware of the history and importance of the census and how to use census data. The ultimate goal is to have students take their knowledge about the census home with them. In some cases, older students may be the only ones in a household with the language skills to complete a questionnaire.

ADJUSTMENT ISSUE FOR THE 1990 CENSUS

Six--the adjustment issue for the 1990 census.

Mr. Chairman, the Commerce Department announced in October 1987 that it will not adjust the 1990 census counts for coverage errors. Under Secretary Ortner and I testified at length on this issue at a hearing this March 3

before the House Subcommittee on Census and Population. Today, I will discuss the major points related to this issue, but first some background.

Coverage Measurement Since 1950

Beginning with the 1950 census, each census has included an evaluation and research program to measure coverage error. The main purpose of these studies has been to measure progress in reducing the errors and to design programs to correct enumeration problems for the next census. In other words, the Census Bureau evaluated the most recent past census in order to improve the next census. We have introduced improvements in each recent census, based, in part, on these evaluations.

The evaluations have shown a steady improvement in net census coverage over four decades, from an estimated undercount of more than 4 percent for the total population in 1950 to an estimated undercount in 1980 of 1 to 2 percent.

Some people have argued that if we can estimate the number of people missed in a census, why not simply correct the census to account for missed persons and make it more accurate. This, in simple terms, is what we call "adjustment." But, as we often find in our society, it is not always so easy to find solutions to our problems. Estimating the census undercount with minimal error and, in turn, using that knowledge to improve the counts are two highly complex and different tasks.

We could not use the results of the 1980 census coverage evaluation programs to adjust the 1980 census counts. We considered the estimates of undercount to be flawed. These flaws included missing data problems, matching error, and

correlation bias in one coverage-measurement program (the Post-Enumeration Survey) and a lack of information on undocumented immigrants in the other coverage-measurement program (demographic analysis). The Census Bureau did not adjust the counts because we were not confident that counts could be produced through the adjustment process that were better than the census counts. The coverage measurement methods in 1980 did not produce acceptable estimates of population or undercount on a national, state-by-state, or small-area basis.

In December 1987, in a ruling handed down in a lawsuit filed against the Census Bureau by the City and State of New York, the U.S. District Court issued an opinion in favor of the Federal Government. The court found that the Census Bureau had determined correctly that an adjustment was not technically feasible or warranted and that no such adjustment should be made. In addition, the court ruled that the plaintiffs had failed to prove that the Census Bureau was arbitrary or capricious in declining to adjust census results.

Diversity of Opinion and Major Uncertainties About Adjustment for 1990

While the Census Bureau has made considerable progress in developing statistical techniques related to undercount measurement for the 1990 census, there are still serious doubts among statisticians and others both inside and outside the Bureau about the Census Bureau's ability to make census counts more accurate through adjustment. There was mixed opinion among Census Bureau staff on our capability to correct the census for estimated under and overcounts. Those with differing opinions include Census Bureau professionals who have studied these issues and the underlying

data for several years, considering whether it is possible to improve the decennial census through adjustment.

Adjustment would be based primarily on an independent post-census sample survey called the Post-Enumeration Survey (PES). The Census Bureau would collect interview data from a sample of residents of housing units and collect information that focuses on where the residents of those units lived on April 1, 1990 as well as on other demographic characteristics. The individual PES records would then be matched to individual census records to estimate the number of people missed.

Matching between the PES and the census--two separate independent data collections--may be inconclusive for a number of reasons. People do not always report the same data in exactly the same way in these two separate operations. Responses are not always accurately recorded. Some people refuse to be counted in each survey. Data processing errors can creep into the two sets of data. Matching is often indecisive for a number of cases. These problems lead to incorrect matches and nonmatches and, ultimately, to errors in estimating the net undercount. The critical question that remains unresolved is whether the Census Bureau has the capability to bring errors in the system under control enough to be certain that the results are measures of undercount, not procedural errors.

Even if there were agreement among the staff on the likelihood of producing more accurate census results through adjustment, there remain serious operational issues. By and large, those who are managers of the census operations believe that we could not carry out an adjustment operation by the legally mandated deadline of December 31, 1990 for apportionment purposes.

To produce adjusted figures in time to meet this statutory deadline for reapportionment data and April 1, 1991 for redistricting data, we would have to make changes to the census enumeration process. We would have to curtail some census field enumerations, followup activities, content improvement activities, and coverage checks to integrate the coverage measurement activities. These curtailed activities relate to census quality. If the adjustment process were unsuccessful, it is uncertain what the quality of the census count would be if we had only that to fall back on. We are convinced that trying concurrently to accomplish both successfully threatens the quality of each.

There also are likely to be timing problems in completing a adjust the census count. The difficult-to-enumerate areas that will require more time to get the census done will be the same areas that will require more time to complete the PES.

Serious, Unresolved Issues

These are some of the serious, unresolved issues that lead some professional statisticians to doubt the technical or operational feasibility of adjusting the census counts in a way that improves them. These worrisome concerns weighed heavily in our deliberations on the adjustment issue. Despite these uncertainties, however, there are some Census Bureau staff who recommend that adjustment be pursued. The fact that there is disagreement--at times sharp disagreement--among knowledgeable experienced staff members is, in itself, a major cause of concern.

FINAL THOUGHT

Mr. Chairman, we have taken a number of steps to improve the efficiency and accuracy of the 1990 census. We want to concentrate our energy, attention, and resources on these efforts to make the census better. We expect these steps will continue the trend of reducing the undercount. I mentioned already the planned improvements in the areas of broadening outreach and increasing local participation in the census and in implementing automation advances. I will briefly mention four other improvements that we plan:

Efforts to Increase Mail-Return Rates

We are trying to increase questionnaire mail-return rates through the use of colorful motivational inserts sent out with the questionnaires and multi-language flyers that alert householders that their questionnaires will be coming in the mail.

Local Review

We have improved our program for review of the census counts by local officials. One way we have done this is to provide training to the local officials on how to participate in this program. We have held one set of training workshops and will conduct a second set next year.

Census Procedures

We have improved procedures for listing addresses, for counting the homeless, and for enumerating public housing complexes in big cities. And we have

refined questionnaire delivery techniques to make sure each housing unit receives its questionnaire.

Personnel Issues

And we have revised our way of training, hiring, and paying our temporary workforce so we can hire quality workers and reduce turnover. At the peak of operations in April-May 1990, we will employ about 300,000 enumerators, clerks, keyers, and supervisors.

This is just a sampling of what we are doing to meet our commitment--which we take very seriously--to have the most complete and accurate count possible for all Americans.

Mr. Chairman, that concludes my testimony.

June 23, 1988 request from Senator Pryor

Question 1.

As reported by GAO, the procurement of ADP equipment needed for the 1990 Decennial Census has been plagued with numerous problems. It seems obvious to me, based on GAO's report, that the Bureau has not provided sufficient oversight nor implemented appropriate management controls to assure that the equipment purchase is appropriate, timely or cost-efficient. What actions have you taken to assure sufficient controls are in place for the remaining critical phases of this project? How are you emphasizing quality during all phases of the project or are you continuing to push the meeting of deadlines at the expense of quality and sound management judgment?

Answer

There were problems with this procurement. But I believe that a knowledgeable third party looking at the total computer acquisition and implementation would be compelled to say "You did an outstanding job here." Prudent management decisions all along the way coupled with a committed work force made the critical difference.

We do not agree with the comment that we have pushed the meeting of deadlines at the expense of quality and sound management judgment. With the suspension of the Family of Minicomputers procurement we were confronted with the decision to either wait out the protest process thereby sacrificing automation of the Economic/Agricultural and Decennial Censuses or settle the protest and move on with our automation plans. If we had sacrificed our automation plans to defend against the protest, the quality of the censuses would have been severely diminished. We believe that our management decision has been proven to be sound due to the high quality and low cost of the equipment and software that we procured and also due to our successful implementation of that equipment during the 1987 Economic/Agricultural Censuses and the 1988 Dress Rehearsal for the Decennial Census.

To reduce the risk of again being confronted with such a dilemma we have increased the staff of the Procurement Office to a level adequate to handle the workload of the Decennial Census. Also, we increased our lead time needed for major procurements as mentioned in the GAO report. Additionally, we have a tracking system that informs Census Bureau management of the quality and timeliness of actions critical to the census.

Question 2.

According to GAO, as of February of this year, you still had not decided on the ADP needs for the 1990 Decennial Census. Are these needs now firm?

Answer

The ADP needs for the 1990 Decennial Census have been defined. The documentation of these ADP needs is under final review within the Census Bureau and will then be submitted to the Department of Commerce for approval.

Question 3.

Have you considered using the forms from the dress rehearsal to test the programs for the minicomputers in a realistic way, rather than using forms prepared by the highly trained Current Population Survey interviewers?

Answer

We do intend to use actual 1988 Dress Rehearsal completed questionnaires to test our systems for 1990. Let me expand on this for your information.

The paper forms completed by respondents do not directly interact with the mini-computers. The FACT-90 system is used to convert the data on the paper into computer readable format (magnetic tape). The magnetic tapes are then fed into the minicomputers for further processing and communication to Processing Office computers.

We successfully used FACT-90 technology in the 1988 Dress Rehearsal. Also, we intend to use batches of the actual 1988 Dress Rehearsal forms to quality test the FACT-90 system in each Processing Office as part of our start-up procedures.

Question 4.

The Department of Commerce and the Bureau paid $1.1M to 3 offerors because the Bureau could not afford the additional time required to resolve their protest. GAO found that little or no attention was given to the offerors' claims and supporting documentation and, instead, the Bureau paid the full amount available under the settlement. For example, GAO found that, in one case, a claim was incorrectly computed and that, in two cases, claims were made for costs specifically not allowable under the settlement agreement. In all three cases, the Bureau inappropriately paid for the claims. Therefore, how did the Bureau determine the amount to be paid to the protestors? As a custodian of federal funds, do you believe you and your staff acted with sound judgment and in the best interest of the taxpayer?

Answer

By court order we were required to pay the claims within 30 days of the order. The 30 day order, which was compelling, did not provide time to properly audit those claims. Such audits, following Federal Acquisitions Regulations (FAR) and usually conducted by the Defense Contract Audit Agency, typically require a minimum of 60 days lead time. Given these constraints I believe our actions were prudent.

Question 5.

How much has been spent to date on the computer procurement? How can the Congress reasonably expect that the remainder of the procurement and the ultimate use of the computers for the 1990 Decennial Census will be handled well and in the best interest of the country?

Answer

We have spent $21,000,000 to date on the computer procurement. We share your concern that the remaining computers ordered for the Decennial Census are appropriate and cost-effective. We have extensively tested these computers in the Kansas City Processing Office and in three Collection Offices during the 1988 Dress Rehearsal. Based on evaluation of these tests we are confident that the ADP needs that we have identified for the remaining offices are correct and will provide for a cost-effective, high quality census.

Question_6.

In your testimony, you indicate TIGER is on-track, but GAO's report indicates otherwise. What is your evidence to support your statement?

Answer

We did experience delays in the production of maps for the 1990 census field operation, prelist. We have adjusted the schedule for this operation to accommodate our capacity to produce the maps. Our delay in the production of the maps was caused initially by delays in the development of the software to build the TIGER File data base. Once we completed this software, the reduced time available to complete the maps and the computer processing this required exceeded the capacity available on our UNISYS computers. To overcome this obstacle, we signed an agreement with the Department of Agriculture for additional UNISYS computer capacity. Our current map production is meeting the revised schedule for the 1988 prelist operation with the first of four "waves" actually in the field. We also are producing the required products from the TIGER File for the assignment of the geographic location codes to the address list the Census Bureau purchased from the private sector. This operation, called TAR geocoding, is on schedule. We anticipate no further problems in being able to produce the maps and other geographic products necessary to take the 1990 census on time.

Question 7.

I know you have decided not to adjust the census counts, but we have been told by a number of statisticians that, regardless of this decision, the post-enumeration survey is an important coverage evaluation technique which is used to measure census error. By selecting small blocks, the Bureau is able to compare the number of people counted for the first time in the census with the survey results and allows them to determine who is missing and who has been counted twice. Why have you scaled back the size of the post-enumeration survey? Won't a smaller PES limit your ability to determine the accuracy of the census count? Have you corrected the post-enumeration survey to prevent the problems you encountered in 1980? Please provide to the subcommittee the documentation associated with the Bureau's decision to downsize the PES.

Answer

We have not scaled back the size of the post-enumeration survey. Our base program and all budget submissions we have made included a sample size of 150,000 housing units for the PES. We had considered increasing the sample size of the PES to 300,000 housing units if we decided to try to adjust the 1990 census. Last October a decision was made not to try to adjust 1990 census counts so we did not expand the sample size for the PES.

We believe the sample size of 150,000 housing units is sufficient to meet our needs for coverage evaluation of the 1990 census. With this sample size we will be able to make person-by-person matches to the census, identify duplications, and sort out other anomalies in the counts. We will gain substantial experience on matching procedures and other technical aspects of the methodology. We will obtain coverage estimates for the U.S., for regions, for states, for large cities, for urban and rural areas and for metropolitan and nonmetropolitan areas as well as for demographic subgroups.

The problems encountered in the 1980 PES were partially addressed by the research we have undertaken during this decade but significant problems remain to be resolved. Questions still remain open on accuracy of matching, accuracy of PES interviews, response errors in the PES, and various other methodological issues. We plan to continue to research these issues through the 1990 census.

The larger sample would do little to help reduce the above mentioned problems in the PES and, in fact, may cause some of their effects to be increased. By increasing sample size some sampling error reduction would occur but biases in the PES would not be reduced and may be increased. For example, with the larger sample we would have to use less experienced personnel on various activities such as matching. Thus, nonsampling error in the PES might increase with the larger sample size.

Question 8.

In the 1980 Census, you had a cost-containment policy to limit possible increases in costs. In 1986 and in your statement today, you state that the 1990 Decennial Census will cost the government $2.6B; yet your estimate does not include the increase in cost of the TIGER program (from $194M to $371M), the added costs associated with the delayed minicomputer procurement ($1.1M for the bid protest, $3M to lease mainframe computer time and cost to convert software from the mainframe to the minicomputers), the recent increase in postage and the planned raise in the minimum wage. What will be the real cost of the census and, in the interest of limited federal resources, what are you doing to contain the costs?

Answer

Our estimated cost of $2.6 billion for the entire 10-year decennial census cycle does include some or all of the costs for the activities you mention. For example, use of the TIGER system and aspects of the TIGER system development (specifically, those requirements unique to the decennial census) are covered in the Decennial Census budget activity, and equipment purchased for decennial census use is covered by the Decennial Data Capture line item in the Data Processing Systems budget activity. However, some of the costs you mention are for equipment or developmental work to support Census Bureau activities other than the decennial census. For example, a significant portion of the TIGER system development is funded by the Geographic Support budget activity since the capabilities of the completed system will have applicability to many Census Bureau programs. Similarly, some of the minicomputers and other equipment purchases to be used for other Census Bureau activities are covered by other line items in the Data Processing Systems budget.

Other changes (such as postal rate increases) that occurred since we prepared the estimate of $2.6 billion in 1986, are taken into account in formulating program and budget needs as we prepare our FY 1990 budget requests.

The Census Bureau has a constant concern for the cost effectiveness of our programs, and this is a major criterion in selecting methods and procedures for the 1990 census. The decennial census program must meet many needs and requirements established by the various branches of the Federal Government, state and local governments, and the many users of census data. In addition, based on problems identified in previous censuses, we set additional goals that result in new or improved methods for 1990. Based on these goals and requirements, we have spent over 5 years designing an effective and efficient program. Compared to previous censuses, there also has been a significant increase in the amount of review and attention, both internally and externally, to the value and costs of the census we plan. In addition, many of the changes we have made for 1990 are designed to improve the cost effectiveness of census operations. For example, the increased use of automation, particularly the Automated Control File (ACF) and the automated Management Information System (MIS), should provide much better operational and managerial control of costs and progress.

Question 9.

GAO and the Bureau appear to differ on the progress being made in preparing for the 1990 Census. For example, GAO cites that the minicomputers and software were not fully tested during the dress rehearsal and would not be tested before the final implementation of the census; critical map production is seriously delayed; and the address list is being developed without a quality assurance check. You state otherwise. I am confused. Who is right and why is there such a wide difference?

Answer

The delay in the minicomputer procurement did impact the Bureau's initiative to develop and fully test software applications on Digital minicomputers during the dress rehearsal. However, the most critical applications planned for Digital implementation in 1990 were developed and run on Digital computers in the dress rehearsal. These include data keying, editing, applicant tracking, assignment control, cost and progress, and aspects of address file maintenance. Some of this software initially failed to perform as expected, and overall system performance of some applications was less than optimal.

For 1990, based on these dress rehearsal experiences, the Bureau is refining software applications and adjusting the configuration of field office computer systems. The latter is based on results of a recent controlled load simulation performed to Bureau specifications by Digital Equipment Corporation. All software to be used in field offices for the 1990 decennial census will be fully tested and released through our Beta Test Site facility in Baltimore. In addition, the Bureau retained dress rehearsal district office space to use it for live tests of final software to be used in 1990 in the district offices. This will permit 1990 simulation using software, operating procedures, instructions, and training, with temporary office employees like those we will use in 1990.

There have been delays in the production of maps. These delays were caused by delays in the development of software to build the TIGER File data base. This reduced the time available to produce the maps needed for prelist. The USDA computer support (mentioned in #6 above) helped us complete the work needed for prelist activities. (We respond to the quality issue in our response to your June 27 question #4).

June 27, 1988 request from Senator Pryor on behalf of Senator Sasser

Question 1.

While you describe the preparatory stages of the census as proceeding fairly smoothly, Mr. Fogel's testimony pointed to some serious concerns in the census preparation.

Would you please comment on GAO concerns over the testing of the new software and the delays and changes in prelisting?

Answer

In August 1987 we undertook accelerated development of software programs for the March 1988 Dress Rehearsal to test 1990 operations. We also established a Systems Support Group to install and test the hardware. This was done successfully. Data keying, editing, address file maintenance and updating were all performed on the family of minicomputers in 1988 to fulfill our goal of testing 1990 operations in 1988.

We are now in a favorable position for timely development of reliable 1990 systems. Today formal testing procedures are in place at our Baltimore National Support Center. Software for 1988 prelist operation in August is being tested now at the Baltimore Center by our Systems Support Group. The Census Bureau has committed to test and distribute to the field and processing offices all 1990 software through the Baltimore center in a standardized fashion. We anticipate no untested software for the 1990 census. (See also our response to your June 23 question number 6.)

Question 3.

Do you think that there is a possibility that the final cost of the 1990 census will be over the present $2.6 billion dollar cost estimate?

Answer

In an undertaking as massive and complex as the decennial census, there certainly is a possibility that the actual costs will differ from our current estimates. Our budget estimates are based on past experiences in censuses, tests, and the dress rehearsal coupled with various assumptions about workloads, staff productivity, and the like. To the extent that our assumptions are incorrect, or due to circumstances beyond our control, the final cost may differ from the estimated costs. For example, if the mail response rate is lower than our assumption, we will have substantial additional costs to enumerate the additional nonresponse households by personal visit. In anticipation of this type of unanticipated cost, in FY89 we requested a contingency be established so that funds could be made available quickly during the height of census operations. There also have been various changes to plans and assumptions since we prepared the estimate of $2.6 billion in 1986. In preparing our FY 1990 budget request, all such changes have been taken into account in the formulation of our program and budget needs.

Question 2.

In the 1990 census, you say that 17.7 million housing units will receive long forms. However, you noted that if a sample design similar to the 1980 census were to be used 19.3 million housing units would have been included.

If, as you say in your testimony, the larger sampling rate in 1980 was used to produce more accurate data for small places, are you inferring that the smaller sampling rate being used in 1990 will be less accurate in collecting data for small places?

Answer

While the sample design for the 1990 census specifies the overall sample size, we still are in the process of determining the final distribution and the associated levels of precision for each area. Producing accurate data for small places is a major goal in determining the distribution of the sample.

Question 4.

All things considered, how much more or less accurate do you think the 1990 census will be compared to the 1980 census?

Answer

We estimate that we counted 98.6% of all persons in the 1980 census, and we believe we can improve on this figure for 1990. We also estimate that there were differing levels of coverage for different groups and areas, of course, and so we are concentrating many of our efforts on preventing such differentials in 1990. Our efforts include:

- Increased promotion, outreach, and publicity efforts aimed at various minority groups and organizations

- More joint participation between Census Bureau and localities to help achieve a good census

- Additional efforts to increase mail response

- Improved address list compilation activities

- Questionnaire delivery and enumeration methods tailored to meet differing requirements in different areas

- Improvements to enumerator training, pay, and management techniques

- Increased use of automation to improve timeliness, consistency, quality and control of operations

- Improved maps and consistency of geographic tools and products through use of the automated geographic support system (TIGER)

- An earlier start to planning and an expanded testing program

Maps now are in full production and we have a revised schedule for the national prelist operation that still allows us to meet our overall schedule and workflow requirements. This schedule includes the Postal Service check of addresses, like the one that was cancelled prior to the 1980 census. Thus, regarding the point that no quality control would be used in developing the address lists (see your June 23 question #9), we believe the GAO was referring to the 1980 census where the scheduled prelist was much closer to census day than is planned for 1990. Delays in completing the 1980 field work required us to drop the planned postal check. That is not the case for 1990.

United States General Accounting Office

GAO

Report to the Chairman, Subcommittee on Federal Services, Post Office, and Civil Service, Committee on Governmental Affairs, U.S. Senate

June 1988

DECENNIAL CENSUS

Minicomputer Procurement Delays and Bid Protests: Effects on the 1990 Census

GAO/GGD-88-70

GAO

United States
General Accounting Office
Washington, D.C. 20548

General Government Division

B-222824

June 14, 1988

The Honorable David Pryor
Chairman, Subcommittee on Federal
Services, Post Office, and Civil Service
Committee on Governmental Affairs
United States Senate

Dear Mr. Chairman:

This report responds to your June 22, 1987, request that we review the Bureau of the Census' procurement of minicomputers primarily for the 1990 Decennial Census. You asked that we determine the cause and effects of the delays associated with the procurement. You also requested that we determine the reasons for two bid protests and whether the settlement of the first bid protest was warranted.

As arranged with the Subcommittee, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days after its issue date. At that time, we will send copies to the House Subcommittee on Census and Population, other appropriate congressional committees, the Secretary of Commerce and the Director of the Bureau of the Census, the Director of the Office of Management and Budget, and the Administrator of the General Services Administration. Copies will also be made available to other interested parties upon request.

Sincerely yours,

Richard L. Fogel
Assistant Comptroller General

Executive Summary

Purpose

In January 1986, the Bureau of the Census (Bureau), part of the Department of Commerce (Commerce), decided to procure an estimated 555 minicomputers at a maximum potential cost of $80 million. The goal was to improve the accuracy and timeliness of data collection activities, primarily for the 1990 Decennial Census. The Bureau awarded the minicomputer contract in May 1987, much later than planned. In addition, two bid protests were filed, with one involving a settlement of $1.1 million.

The Chairman of the Subcommittee on Federal Services, Post Office, and Civil Service, Senate Committee on Governmental Affairs, requested the General Accounting Office (GAO) to determine the cause of the minicomputer procurement delays and the effects of the delays on the Bureau's operations, particularly for the 1990 Decennial Census, and to determine the reasons for the bid protests and whether the settlement of the first bid protest was warranted.

Background

In January 1986, the Bureau decided to procure about 555 minicomputers of various sizes as well as support equipment and services. The vast majority (529) of the minicomputers were expected for use in the 1990 Decennial Census for such purposes as checking in questionnaires, keying questionnaire and address data, and preparing maps.

The Bureau issued a request for proposals (RFP) in September 1986 and awarded a contract in May 1987 under which it could purchase up to $80 million of equipment and services. Bid protests were filed with the General Services Administration Board of Contract Appeals (GSBCA) before and after the award. The first protest was settled and the second was withdrawn by the protestors.

Results in Brief

Incomplete plans for the 1990 Decennial Census' organization and procedures prevented the Bureau from fully identifying, documenting, and planning for its automatic data processing (ADP) needs and initiating the minicomputer procurement process in a timely manner. This late start was compounded by a 6-month delay in the Bureau's planned minicomputer procurement schedule.

Commerce and the Bureau settled the first bid protest by paying a total of $1.1 million to three offerors primarily because they felt they could not afford the additional time required to resolve the protest, regardless of the merits. Although the concern for time was not without merit, the

cash settlement could have been avoided if the Bureau had not initially created its own management dilemma by failing to plan properly for and manage the minicomputer procurement.

The procurement delays and bid protests contributed to a decrease in the time available to develop and test software for the 1990 census, a delay in beginning a key operation in preparation for the 1990 Decennial Census, increased costs, and delays in other procurements essential for the census.

Principal Findings

Delayed Procurement Process

Decisions on the organization and operating procedures for the 1990 Decennial Census, such as the number of processing offices and procedures for maintaining the address control file, were not finalized at the time the Bureau made its minicomputer procurement decisions and some are still not finalized. As a result, the Bureau was unable to fully justify its requirements to Commerce and GSA.

One of the key requirements was that all of the minicomputers be fully compatible. Both Commerce and GSA believed that this requirement restricted competition and were not satisfied with the justification the Bureau provided. This concern was the principal reason for delaying the contract award by approximately 6 months. In spite of this concern, Commerce and GSA approved the Bureau's request for procurement authority.

The Bureau also did not provide adequate documentation to comply with federal procurement requirements, including the preparation of a contingency plan in case the computer system fails to properly function. A contingency plan is particularly critical because the procurement delays have reduced the time available for developing and testing software for the 1990 census and have prevented the testing of some software applications under census-like conditions, as planned for the 1988 Dress Rehearsal. A contingency plan is particularly important in light of computer system failures the Bureau experienced in its 1986 tests of the decennial census. (See pp. 12 to 16.)

Bid Protests

The first bid protest (pre-contract award) was filed with the GSBCA by three offerors who contested the Bureau's determination that their proposals did not adequately respond to technical provisions of the RFP. After a hearing, the GSBCA temporarily suspended Commerce's procurement authority.

Commerce and the Bureau decided to settle the protest rather than defend it on its merits. Because of a late start and delays in the procurement process and the suspension of the procurement authority, they believed they could not afford additional time for the GSBCA to decide the case. Commerce also discovered a procedural flaw in the procurement process which it believed would have been discovered by the three offerors and would have jeopardized the government's case before the GSBCA. Commerce cited this procurement flaw as a contributing factor in its decision to settle.

The settlement stipulated that each of the three offerors would receive up to $400,000 for proposal preparation and protest costs after submitting appropriate supporting documentation. After making a cursory review, the Bureau, without questioning the documentation submitted, paid a total of $1.1 million to the three offerors, which represented all claims submitted up to the $400,000 maximum for each offeror.

The second protest (post-contract award) involved two offerors. After the GSBCA ordered a temporary suspension of the procurement, the offerors voluntarily withdrew their complaints.

The bid protests overtaxed the Bureau's procurement office, which at that time employed three of the six authorized contract specialists and was beset by high turnover in its leadership with five managers in 3 and 1/2 years. This delayed other decennial census procurements, including equipment and supplies needed to print the maps used to collect and tabulate population data by geographic areas. By July 1987, the Bureau had filled most of the vacancies. (See pp. 21 to 29.)

Effects of Delayed Procurement and Bid Protests

The minicomputer procurement delays and bid protests (1) contributed to delays in developing and testing software for the 1990 census and in beginning the address list development for suburban and rural areas (delays in this activity in the 1980 census led to a more expensive and less accurate census), (2) resulted in the payment of $1.1 million to settle the first bid protest, (3) influenced the Bureau's decision to lease computer time from another agency at an added cost of up to $3 million,

and (4) contributed to the delay in other procurements needed for the 1990 census. (See pp. 16 to 19.)

Recommendations

Because the late start and delayed contract award reduced the time available for software development and testing, particularly under census-like conditions in the 1988 Dress Rehearsal, GAO recommends that the Secretary of Commerce direct the Census Bureau to prepare a formal contingency plan in the event the minicomputer system does not operate properly.

Agency Comments

GAO did not obtain official agency comments but did discuss the contents of this report with Bureau officials. They provided technical clarification which GAO incorporated where appropriate.

Contents

Executive Summary		2
Chapter 1 Introduction		8
	Overview of Bureau Activities	8
	Minicomputer Procurement History	9
	Objectives, Scope, and Methodology	10
Chapter 2 Minicomputer Procurement Delays Adversely Affect Bureau Operations		12
	Major Reasons for Delay in the Procurement Process	12
	Planning Requirements Not Followed	15
	Effects of Delayed Procurement	16
	Conclusions	19
	Recommendation	20
Chapter 3 Bid Protests and Settlement: Causes, Costs, and Other Effects		21
	Reason for First Bid Protest	21
	Commerce and the Bureau Settle First Bid Protest	21
	Reasonableness of Amount Paid and Costs Claimed in First Bid Protest Settlement	25
	Reasons for Second Protest	27
	Bid Protests Delay Other Procurements	27
	Conclusions	29
Tables		
	Table 1.1: Types of Minicomputer Systems	10
	Table 3.1: Bid Preparation and Protest Costs	22

Abbreviations

ACF	Address Control File
ADP	Automatic Data Processing
CCF	Collection Control File
DPA	Delegation of Procurement Authority
FAR	Federal Acquisition Regulation
FIRMR	Federal Information Resources Management Regulation
G and A	General and Administrative Costs
GAO	General Accounting Office
GB	Billions of Bytes
GSA	General Services Administration
GSBCA	General Services Administration Board of Contract Appeals
IG	Department of Commerce Inspector General
IRS	Internal Revenue Service
MB	Millions of Bytes
MIPS	Millions of Instructions Per Second
OMB	Office of Management and Budget
RAM	Random Access Memory
RFI	Request for Information
RFP	Request for Proposals

Chapter 1

Introduction

On September 19, 1986, the Bureau of the Census (Bureau), which is part of the Department of Commerce (Commerce), issued a request for proposals (RFP) to acquire minicomputers and support equipment and services, primarily to support the 1990 Decennial Census. While the Bureau expected to award the contract by November 26, 1986, it encountered several procurement problems, including two bid protests (one pre-contract and one post-contract award). The pre-contract award protest was settled by paying $1.1 million. As a result of the procurement problems and the first bid protest, the contract was not awarded until May 15, 1987, a delay of about 6 months. This delay compounded problems arising from the Bureau's late start in beginning its procurement activities. The combination of the procurement problems and delayed contract award have disrupted the Bureau's operations, including several key activities vital to the success of the 1990 census.

On June 22, 1987, the Chairman of the Subcommittee on Federal Services, Post Office, and Civil Service, Senate Committee on Governmental Affairs, requested that GAO assess the Bureau's procurement problems, including the bid protests, and determine their cause and effects, particularly on the 1990 census.

Overview of Bureau Activities

The Bureau is the primary source of statistics collected to assist federal, state, and local governments as well as the private sector in the development and evaluation of social and economic programs.

The Bureau's largest and most complex undertaking is a complete count of the nation's population and housing every 10 years (decennial census). The Constitution mandates the population count, which has been done since 1790. Three major uses of the decennial census data are the (1) determination of the number of seats each state is entitled to in the House of Representatives, (2) formulation of congressional and state legislative redistricting plans, and (3) distribution of billions of dollars in federal and state funds. The cost of taking the census has grown over the years, and the Bureau estimates that the 1990 Decennial Census will cost about $2.6 billion. By law, the census data will be collected as of April 1, 1990 ("Census Day"), and the population counts must be provided to the President by December 31, 1990.[1]

Every 5 years, the Bureau takes three other major censuses:

[1]See 13 U.S.C. Section 141 (1988).

- census of agriculture;
- economic censuses, covering businesses, construction, manufacturing, mining, and transportation; and
- census of governments.

Between these periodic censuses, the Bureau, using statistical sampling techniques, conducts surveys to update certain data. The Bureau also collects other statistics which are used extensively as input into broad indicators of economic activity, such as the Gross National Product, Index of Industrial Production, and international trade statistics.

Minicomputer Procurement History

Originally, the Bureau only planned to acquire 6 to 10 large, high speed minicomputers for its annual data collection surveys, such as the Annual Survey of Manufactures. This plan, however, was later changed significantly. In November 1985, the Bureau submitted a request to Commerce, which has oversight over the Bureau's procurements of automatic data processing (ADP) equipment, to acquire these minicomputers. In January 1986, the Bureau decided to consolidate some of the automation requirements for three other programs—1990 Decennial Census, geographic update system, and the agricultural and economic censuses—with its original request. The Bureau made this decision in the hope that the procurement for the three programs would be expedited.

Under the revised plan, the Bureau expected to procure an estimated 555 minicomputers and related hardware, software, training, and maintenance over an estimated 6-year system life spanning 1987 to 1992. The Bureau planned to purchase the minicomputers through a contract which did not require a specific quantity of equipment, materials, and services but which did stipulate a ceiling value of $80 million.[2] About 500 of these minicomputers were exclusively for use in the 1990 Decennial Census. Twenty-nine were to be used for the geographic update system needed to support the decennial census.

In January 1986, the Bureau decided to procure five different types of minicomputer systems instead of one, as originally planned. The systems vary greatly in speed, memory, size, and cost as shown in table 1.1. Moreover, the Bureau required that all five minicomputer systems be

[2]For the procurement, the Bureau used an indefinite-quantity type contract which provided for a range of equipment, supplies, and services with a stated minimum ($6.9 million) and a maximum amount ($80 million) to be provided over a fixed period of time (6 years).

capable of using the same operating and applications software programs (compatibility). This procurement is referred to by the Bureau as a family of compatible minicomputers.

Table 1.1: Types of Minicomputer Systems

System	Speed (MIPS)[a]	Random access memory (MB)[b]	On-line storage (GB)[c]	Estimated cost[d]
A	8	32	20.0	$700,000
B	4	24	15.0	400,000
C	1	16	5.0	150,000
D	0.5	4	2.0	75,000
E	0.25	2	0.5	50,000

[a]MIPS is a measure of how fast a computer operates and stands for millions of instructions per second that a computer can perform.

[b]Random access memory (RAM) resides inside the computer itself. RAM is faster than the on-line storage memory. MB stands for millions of bytes and is a measure of a system's information storage capacity.

[c]On-line storage is memory that resides on disk or tape outside the computer. GB stands for billions of bytes and is a measure of a system's information storage capacity.

[d]Average unit cost, estimated by the Bureau, including the cost of peripheral equipment and software license agreements.

Objectives, Scope, and Methodology

On the basis of the Subcommittee's June 22, 1987, letter and subsequent discussions, we agreed to determine the

- actual and potential effects of the minicomputer procurement problems on the Bureau's operations, particularly the decennial census;
- reasons why the Bureau took longer than expected to obtain the needed approvals from Commerce and the General Services Administration (GSA);
- reasons for the first bid protest, and whether the settlement was warranted and reasonable;
- reasons for the second bid protest;
- action taken to improve the procurement function in order to avoid future problems and delays; and
- adequacy of the staffing levels in the procurement office.

In responding to these issues, we obtained and examined the transcripts of the two protest hearings as well as documents submitted in connection with the hearings. We examined minicomputer procurement documents, including the Bureau's request for proposals (RFP), vendor proposals, protestor claims and supporting documentation, and GSA's

minicomputer delegation of procurement authority (DPA) file. We reviewed the Bureau's files on the procurement office's staffing. We interviewed Commerce Department procurement and legal officials and the Deputy Secretary; Bureau management, procurement, program, and administrative staff; GSA procurement personnel; and protestor representatives. We also reviewed previous GAO and Department of Commerce Inspector General (IG) reports on Bureau operations. Our review was done in accordance with generally accepted government auditing standards. Our field work was done between July 1987 and February 1988.

At the subcommittee's request, we did not obtain official agency comments. We did, however, discuss the contents of the report with Bureau officials. They provided technical clarifications which we incorporated where appropriate.

Chapter 2

Minicomputer Procurement Delays Adversely Affect Bureau Operations

The delays in procuring the minicomputers have adversely affected the Bureau's operations, particularly the 1990 Decennial Census, and have resulted in increased costs. The Bureau's late decision to procure minicomputers for the census was compounded by a 6-month delay in its contract award. It started the procurement process late because of incomplete plans for the 1990 Decennial Census and uncertain census ADP requirements. In addition, the Bureau did not follow federal regulations covering ADP procurement and did not fully justify certain requirements included in its procurement request.

Major Reasons for Delay in the Procurement Process

The Bureau's late decision to procure minicomputers for the 1990 Decennial Census was compounded by a 6-month delay in the Bureau's planned minicomputer procurement schedule. The major reasons for these delays were that

- the procurement process was delayed as a result of incomplete plans for the 1990 Decennial Census;
- needed delegation of procurement authority from GSA, through Commerce, took longer than planned; and
- evaluation of vendor proposals and conducting negotiations took longer than planned.

Late Start

The Bureau did not decide to procure the family of minicomputers until January 1986. At that time, the minicomputer contract was expected to be awarded on November 26, 1986. Detailed draft specifications, however, were not completed until April 1986. This allowed the Bureau only about 7 months or 210 days to perform all the required planning, obtain approvals from Commerce and GSA, develop and issue the RFP, receive and evaluate the proposals, conduct live test demonstration tests, and award the contract.

This 210-day period is substantially less than current Bureau guidance. In fact, the Director of the Bureau of the Census issued a memorandum, dated June 22, 1987, which said that program offices should allow at least 300 days to award competitive contracts for procurements totaling $1 million or more. This memorandum further said that the 300 days applied only after the detailed specifications and other requirements had been completed and submitted to the Bureau Procurement Office.

As discussed in a prior GAO report,[1] the Bureau and Commerce historically have taken 4 to 5 years to have automated equipment available for use after its need was identified. This time period accommodates the identification of the type of equipment, developing specifications, requesting and evaluating proposals, contract award, equipment delivery and installation, testing equipment, and testing the computer programs designed for the equipment. For example, for the 1990 Decennial Census, the Bureau planned to start preparing maps in October 1987. On the basis of longstanding experience, the Bureau should have started identifying and planning for its minicomputer requirements to support its geographic needs by October 1983. However, the Bureau did not decide to procure the minicomputers until January, 1986.

A major reason for the delayed start in the procurement was the uncertain and changing ADP needs for the 1990 Decennial Census. As of February 1988, these needs had still not been finalized. The Bureau has decided that the address control file (ACF) will not be maintained on the minicomputers, as originally planned. This was one of the principal reasons for obtaining the minicomputers. Instead, the Bureau will maintain an abbreviated version of the ACF on the minicomputers, which is called the collection control file (CCF). The ACF will be maintained on the Bureau's mainframe computers.

While the Bureau plans to use minicomputers (systems B and C) at processing offices, the number of offices has changed. The Bureau originally planned to have 49 processing offices. It later decided to reduce the number to 11. At the conclusion of our audit work, the Bureau was considering a further reduction.

Delegation of Procurement Authority Process Took Longer Than Expected

Agencies must obtain a delegation of procurement authority from GSA in order to obtain major ADP procurements.[2] The Bureau allowed 30 calendar days to obtain the needed authority through Commerce from GSA, but it actually took 4 and 1/2 months, 3 and 1/2 months longer than expected. The Bureau's expectation of obtaining the DPA within 30 calendar days proved to be unrealistic because it did not provide adequate justification for requirements contained in the procurement request which Commerce and GSA believed would tend to limit competition.

[1]The Census Bureau Needs to Plan Now for a More Automated 1990 Decennial Census (GAO/GGD-87-10, Jan. 11, 1987).

[2]See 40 U.S.C. 759 (1982), as amended.

With few exceptions, the Federal Information Resources Management Regulations (FIRMR)[3] require GSA to review and approve agency ADP procurement requests within 20 working days of receipt, with an additional 5 days for mail transport.[4] Some of the exceptions include failure to adequately justify requirements, especially those that restrict competition, and submitting incomplete documentation. On the basis of statistics GSA provided, we found that GSA generally approves agency ADP procurement requests within the 20 working day requirement.

There were two reasons why the Bureau's minicomputer procurement request approval was delayed. The first and primary reason was the Bureau's requirement that all five minicomputer systems be capable of using the same operating and application system software. Both Commerce and GSA believed that this compatibility requirement restricted competition, as there were a limited number of manufacturers who made the range of minicomputers that met both the performance characteristics the Bureau wanted and the compatibility requirement. Moreover, GSA believed that the Bureau had not adequately justified the compatibility requirement.

The second reason was the Bureau's desire to use an indefinite-quantity type contract. Commerce officials said they were concerned that an indefinite quantity-type contract might allow the Bureau to acquire more minicomputers than its current needs justify.

Despite these concerns, both Commerce and GSA eventually approved the Bureau's minicomputer procurement request and the contract awarded did provide for the compatibility desired by the Bureau. However, Commerce did impose one major restriction—the Bureau had to have every equipment order approved by Commerce before the Bureau could actually place the order.

Evaluating Proposals Took Longer Than Planned

The Bureau took 1 and 2/3 months longer than expected to complete the evaluation and negotiation process. The Bureau had allowed 3 and 1/3 months to complete this process, but actually took 5 months. The delay occurred during the initial evaluation portion of the process because the Bureau was unable to readily determine if some of the offerors' proposals complied with the technical RFP requirements. Consequently, the

[3]See 41 C.F.R. Chapter 201 (1986).

[4]See 41 C.F.R. section 201-23.107(b)(c) (1986).

Bureau had to request the offerors to supply additional information to clarify their proposals, and then re-evaluate their proposals.

Planning Requirements Not Followed

When acquiring automated information systems, agencies are required to adhere to the FIRMR and Office of Management and Budget Circular A-130 as well as other federal procurement regulations, such as the Federal Acquisition Regulation (FAR).[5] Some of the most important requirements are

- defining the agency's missions and goals,
- determining the information needed to meet the agency's missions and goals,
- developing and examining alternative solutions for meeting the agency's information needs,
- selecting the best alternative based on a cost/benefit analysis,
- developing contingency plans in the event that the selected solution fails or encounters problems during development,
- developing back-up plans in the event the selected solution fails once it is operational, and
- providing a list of key activities and the dates for accomplishing these activities.

The purpose of these planning requirements is to ensure that agency management has thoroughly examined its information needs, determined the most effective way to meet these needs, and assessed the risks that the development of any information system involves.

The Bureau did not fully meet these requirements for any of the four programs for which it is acquiring the minicomputers. The Bureau did some of the required planning for the annual data collection surveys program before initiating the contract award phase of the procurement process. Our review of the Bureau's annual data collection surveys requirements initiative, however, showed it lacked a

- complete discussion of alternative solutions,
- cost/benefit analysis,
- contingency plan should the system fail during development or after operation commences, and
- list of key activities and dates for completing these activities.

[5] See 48 C.F.R. Chapter 1 (1987).

The Bureau did not complete the requirements initiatives for the other three programs before submitting its minicomputer procurement request to Commerce for approval. None of the three requirements initiatives were approved by Commerce before the request for proposals (RFP) was issued. Commerce subsequently approved the requirements initiatives for the agricultural and economic censuses programs, the geographic system and portions of the 1990 census. However, our review of these requirements initiatives revealed deficiencies similar to those we observed for the annual data collection surveys initiative. Moreover, the requirements initiative for the main part of the 1990 census had still not been completed or approved as of the end of February 1988, even though the bulk of the minicomputers was for this activity.

The Commerce IG noted similar problems in a September 1987 report on the Bureau's minicomputer procurement planning process.[5] The Bureau concurred with all the IG's findings and agreed where possible to do the required planning after the fact, time permitting.

Effects of Delayed Procurement

Two major effects of the delayed minicomputer procurement are 1) delaying the development and testing of software for use in the 1990 Decennial Census and 2) slowing the start of address list development for suburban and rural areas.

Software Development and Testing Delayed

The Bureau had planned to test the minicomputer software in the dress rehearsal, which began in 1987 and continues through 1988. This dress rehearsal is intended to replicate, with only minor adjustments, the actual census. However, the Bureau was unable to use the minicomputers for some dress rehearsal activities, including the keying of data used to develop the ACF, the production of maps, and the updating of geographic information. The Bureau expects to use the minicomputers for some later 1988 dress rehearsal operations, including name keying, and believes this could be a surrogate test of the equipment for ACF applications.

The Chief of the Bureau's Decennial Operations Division said that the minicomputer software quality assurance program would not be completed in time for the 1988 dress rehearsal. He said the reason the minicomputer software could not be fully tested was the delay in receiving

[5]Final Audit Report on Census Family of Compatible Minicomputers, Report Number AIS-7-12

the minicomputers. As a result, he believed the Bureau will be entering the census without a test of some software under census-like conditions.

Using software before it is fully proven is risky and could result in the minicomputer systems not functioning as intended. This happened in the 1986 pretests for the 1990 census[7] when the Bureau did not allow sufficient lead time to adequately test software programs that were developed for that test before usage. As a result, many software programs initially did not work for some operations, such as checking-in questionnaires, and had to be modified. To resolve these problems, headquarters staff provided technical assistance and support to the pretest sites. During the full-scale census, however, these resources would not be available to support several hundred regional, district, and processing offices spread across the country. Problems, such as those encountered in 1986, could adversely affect processing operations in 1990 due to the large workloads and the time constraints.

Problems experienced by the Internal Revenue Service (IRS) during 1985 also underscore the risks inherent in not allowing adequate time for testing. In our earlier work on those problems, we noted that an adequate quality assurance program was not applied and that software programs were put into production before they were fully tested.[8] As a result, some programs ran inefficiently while other programs failed to meet users' needs. This contributed to inaccurate notices to taxpayers, untimely responses to inquiries, and increased interest paid by the government on delayed refunds.

Using software that has not been fully tested and shown to function properly is also contrary to the intent of Office of Management and Budget Circular A-130, which requires that a system be fully tested before being used. For example, to comply with the spirit of the circular, the Bureau decided not to use the new minicomputer system for the Census of Manufactures, an important part of the 1987 Economic Censuses. This decision was reached because the Bureau could not test the equipment and software programs planned to be used in the 1987 Census of Manufactures in its prior Annual Survey of Manufactures.

[7]Decennial Census: Pretests Could be Used More Effectively in Census Planning (GAO/GGD-87-24BR, Jan. 1987).

[8]Tax Administration: Replacement of Service Center Computers Provides Lessons for the Future (GAO/GGD-87-109, Sept. 1987).

Delayed Address List Development

As of February 1988, the Bureau had postponed the scheduled beginning of the address list development for rural and suburban areas by 4 months to June 1988. This list development is a critical part of the decennial census. Much of this postponement was caused by delays in producing maps from the Bureau's automated geographic support system. The minicomputers were to be used to prepare computer tapes needed to print the maps. According to the Bureau, its mainframe computers lacked sufficient processing capacity to produce all the needed maps within the required time frames. In Decennial Census: Automation of the Geographic Support System (GAO/GGD-87-75BR, May 1987), we commented on the Bureau's underestimation of its computer requirements for the automated geographic support system and delays the Bureau was experiencing in developing computer files needed to generate maps.

Delays in developing address lists can lead to later problems. One of the most important prerequisites for the decennial census is the development of an address list for rural and suburban residences. An address list is crucial because it is used for mailing out questionnaires, controlling the list of nonrespondents for followup activities, and tabulation purposes. The Bureau estimates that for the 1990 census there will be about 40 million residences in the rural and suburban areas, and an additional 60 million residences in urban areas.

In the 1980 census, late maps and a longer-than-expected period of field canvassing resulted in the Bureau cancelling one of its key quality control procedures, a Postal Service check of the Bureau's suburban and rural address list. This resulted in a less accurate census. To help compensate for the missed procedure, the Bureau instituted a last-minute recanvassing of some of the rural portions of the country, which included approximately 15 million households. The Bureau estimated that about 105,000 housing units were added to the address list from this procedure at a cost of $10.3 million. The housing unit cost for each addition was about $98, making it one of the least cost-effective procedures in the 1980 census.

For the 1990 census, the Bureau expects to employ the Postal Service check, which was omitted in the 1980 census, for most suburban and rural residential households. In addition, the Bureau plans to use a procedure to reconcile differences between its self-developed address data and data the Postal Service provides.

The delayed minicomputer procurement and the need to expedite map production resulted in the Bureau leasing time on the Department of

Agriculture's mainframe computer in Fort Collins, Colorado, to generate computer tapes needed to produce maps. The agreement is for 1 year, from October 1987 through September 1988, at an annual cost of about $3 million. However, the Bureau can cancel the agreement at the end of any month.

The Bureau anticipates that it will be unable to use the minicomputers for the early maps, but is planning to use them for updating the maps by mid-1988. This means that the software developed for the mainframe computer will have to be converted for use by the minicomputers. According to the Bureau's Special Assistant to the Chief, Geography Division, if the Bureau had received the minicomputers when planned, it would not have had to lease time on another agency's mainframe computer. Also, the Bureau could have avoided the cost for software conversion because the programs could have been written specifically for the minicomputer system.

Continued slippage in the development of address lists, as the Bureau's March 1988 progress reports suggest is occurring, could jeopardize completion of some of the Bureau's planned census operations. If planned quality control procedures are eliminated as they were in 1980, the quality of the address list could be impaired, thereby reducing the accuracy of the census count. Also, an elimination of the procedures might force the Bureau to institute the costly recanvass operation used in the 1980 census.

Conclusions

A major reason for the minicomputer procurement problems was the Bureau's failure to develop and finalize in a timely manner the detailed organizational structure and procedures to be used for the 1990 Decennial Census. The Bureau's planning for the minicomputers was started late and remained incomplete. As of the completion of our audit work, plans for the 1990 Decennial Census, which was only 2 years away, had still not been finalized. This was evident in the Bureau's continued indecision regarding the number of processing offices.

The Bureau's minicomputer procurement problems have, directly and indirectly, delayed and disrupted several key activities vital to the success of the 1990 Decennial Census. Because of the delayed minicomputer procurement, the Bureau may be unable to fully develop and test some minicomputer software needed to support the 1990 census. This could

lead to the minicomputers not functioning as intended. Despite the problems in the minicomputer procurement and the requirements for a contingency plan, the Bureau has not developed one.[a]

At the completion of our field work in February 1988, the Bureau was 4 months behind schedule in producing maps needed to develop address lists for suburban and rural residential households. This, in turn, delayed the start of the address list development, a critical census process. The delay may cause the Bureau to reduce or eliminate some or all of its planned quality control checks on the address lists.

Recommendation

We recommend that the Secretary of Commerce direct the Bureau to develop a formal contingency plan that identifies options for employing backup automated equipment and/or possible manual operations to meet essential operational needs in the event that the minicomputer system, including the software, does not operate properly.

[a]See OMB Circular A-130 and Federal Information Processing Standards Publication 38.

Chapter 3

Bid Protests and Settlement: Causes, Costs, and Other Effects

The Bureau's minicomputer procurement was the subject of two bid protests. The first was filed before contract award, and the second after the contract was awarded. The Bureau settled the first bid protest by paying a total of $1.1 million to three offerors. Commerce and the Bureau decided to settle the protest primarily because they believed they could not afford the delay and disruption to the procurement process that would accompany resolving the protest through the administrative process. The second bid protest was withdrawn by the offerors shortly after it was filed.

Although the bid protests did not materially delay the award of the minicomputer contract, the protests placed a heavy burden on the Bureau's understaffed procurement office. As a result, other procurements vital to the decennial census were delayed. To help avoid future problems and delays, Commerce and the Bureau have taken actions to improve the Bureau's procurement function.

Reason for First Bid Protest

The first bid protest, filed on February 26, 1987, with the GSA Board of Contract Appeals (GSBCA), stemmed from the Bureau's decision that three offeror proposals were technically unacceptable for failure to comply with two of the database management software requirements contained in the minicomputer RFP. The protest was initially filed by one of the offerors and the other two offerors joined as intervenors, each objecting to the Bureau's decision on substantially the same grounds.

On March 11, 1987, after holding a hearing on the matter, GSBCA granted the protesting parties' request to suspend Commerce's minicomputer procurement authority. This suspension was to have remained in effect until the GSBCA rendered a decision on the merits of the protest, a period of up to 45 working days from the filing of the protest unless it specifically determined that a longer period was required. The initial 45-day period would have ended on April 30, 1987.

Commerce and the Bureau Settle First Bid Protest

Commerce and the Bureau decided to settle the protest rather than to defend it before GSBCA. On March 19, 1987, the protestors and the Department of Commerce filed a joint motion with the GSBCA to dismiss the protest on the basis of a joint stipulation which included the following provisions:

- Commerce would withdraw its determination that the technical proposals submitted by the three offerors were not technically acceptable and

were not susceptible to being made acceptable, within 1 calendar day after the date of the GSBCA's order approving the joint motion.

- Commerce would amend the RFP to clarify its requirements for data access software within 2 calendar days after the date of the GSBCA's order approving the joint motion.
- Commerce would permit the three offerors to submit revisions to their proposals in response to the amendment to the RFP not later than 5 calendar days after receipt of the amendment.
- Commerce would evaluate any revised proposals submitted by the three offerors and, upon determining the acceptability of them, arrange not earlier than 20 calendar days after receipt of the RFP amendment a live test demonstration.
- In lieu of submitting a revision to their proposals, each offeror had the option of notifying Commerce of its intention to seek from Commerce payments of its protest legal fees and related expenses as well as bid and proposal preparation costs. Such notification was to be submitted not later than 3 calendar days after receipt of the RFP amendment, but in no event would the sum paid to any party exceed $400,000.

The GSBCA approved the joint motion on March 19, 1987, the same date it was filed, dismissing the protest and rescinding the March 11, 1987, procurement suspension order. All three offerors decided to seek payment of their protest legal fees and bid and proposal preparation costs rather than to submit revisions to their proposals. The Bureau paid a total of $1.1 million to the three offerors. Table 3.1 shows, by offeror, the amount claimed by type of cost and the total amount the Bureau paid.

Table 3.1: Bid Preparation and Protest Costs

Figures in thousands of dollars

Type of cost	Offeror One	Offeror Two	Offeror Three	Total
Direct labor	$156.1	$51.2	$105.7	**$313.0**
Overhead	280.0	132.1	134.2	**546.3**
Other direct costs	44.1	39.2	91.2	**174.5**
General and administrative	90.6	66.6	32.8	**190.0**
Legal fees[a]	44.0	29.9	30.3	**104.2**
Total amount claimed	**$614.8**	**$319.0**	**$394.2**	**$1,328.0**
Amount paid	$400.0[b]	$319.0	$394.2	**$1,113.2**

[a]Legal fees to be paid.

[b]The Bureau paid the protestor's claimed or the full amount allowed by the settlement agreement.

Reasons for Commerce's and the Bureau's Decision to Settle the Protest

According to Commerce and Bureau officials, they decided to settle the protest primarily because of their concerns about time and cost and not because they felt the rejection of the three offerors' proposals was erroneous, as was reflected in the settlement. Due to a late start and prior delays, the Bureau was significantly behind schedule procuring the minicomputers. They believed they could not afford to wait the additional time or incur the further disruption to the procurement process that would be required for the GSBCA to decide the case. Before the protest was filed, the Bureau decided that if it could not award the minicomputer contract by June 1, 1987, it would eliminate the decennial census minicomputer requirements from the procurement. Thus, the Bureau would resort to doing the 1990 census much as it had done the 1980 census.

The former Deputy Secretary of Commerce, who made the decision to settle the protest, said that regardless of whether Commerce and the Bureau ultimately won or lost the protest, the amount of time that would have been required to defend the protest would have precluded the use of the minicomputers for the 1990 Decennial Census. According to the then Deputy Secretary, this would have resulted in increased operational costs and a decrease in the accuracy and timeliness of the census. He said that the estimated expenses of about $1 million to settle the protest was the least costly way to go, increasing the total procurement costs by about 1 and 1/2 percent.

Commerce was also concerned that it might lose the protest because of the discovery of a procedural flaw in the procurement process. This flaw was not the basis of the protest, as the three offerors were unaware of it when they filed their complaint. The Bureau had approved an extension of time requested by one offeror to permit it to change its proposed software package. According to Commerce and Bureau officials, the other offerors did not ask to change their software packages or request an extension of time. The Bureau, however, did not inform them of the extension granted to the one offeror or offer them an opportunity for a similar extension. The Commerce attorney responsible for handling the protest believed the extension for the one offeror could have jeopardized the government's case before the GSBCA. According to the attorney, this error would have been discovered by the three offerors in the course of litigation and could have resulted in the loss of the protest.

Analysis of the Settlement

Because of their concern about time, Commerce and the Bureau decided that a cash settlement was the most expeditious method of disposing of

the protest and proceeding with the procurement. As part of the settlement, Commerce and the Bureau agreed to withdraw their determination that the offerors' proposals were unacceptable and they further agreed to amend the RFP. By withdrawing their findings that the three offerors' proposals were unacceptable, Commerce, in effect, conceded that the offerors had been improperly excluded from the competition. This satisfied the GSBCA requirement for a finding of a statutory violation necessary for awarding protest and bid and proposal preparation costs. Under GSBCA rules, protest and bid and proposal preparation costs may be paid if the GSBCA determines that a challenged agency action violates a statute or regulation or the conditions of any delegation of procurement authority.[1]

However, on the basis of evidence obtained through our review, it appears that despite the provisions of the agreement, Commerce and Bureau officials continued to believe that the three proposals were, in fact, technically unacceptable. From interviews with senior officials at both Commerce and the Bureau, we found general agreement that the RFP was clear and that the offerors' proposals did not meet the requirements of the RFP. They believed that a strong case existed to pursue the protest on those issues. A Bureau official involved with the procurement said that the RFP amendment, which the settlement stipulated, was unnecessary and added that at the time of the settlement the Bureau was willing to do whatever was necessary to settle the protest.

Moreover, from our review of the record, we found that the three offerors' proposals did not fully comply with the RFP's database management software requirements. The proposals did not satisfy the RFP provision of supporting up to 2,000 data fields per record without diminishing the user friendly system objective. We believe that this provided a basis for the Bureau's position that the proposals were unacceptable. Furthermore, on the basis of our independent review of the RFP and the amendment resulting from the settlement, we believe that the RFP was clear and did not require the amendment for clarity.

Regarding the procurement flaw cited by Commerce as a contributing factor in the decision to settle the protest, we are not certain to what extent the flaw would have affected Commerce's and the Bureau's case if it had gone to the merits.

[1] 40 U.S.C. Sec. 759(f)(4)(B)(ii)(Supp. III 1985).

If Commerce and the Bureau felt that it was necessary to cure the flaw, the appropriate remedy would have been to allow each of the three offerors a reasonable opportunity to submit a revised proposal. However, this would have required additional time which Commerce and the Bureau said they did not have. Instead, Commerce and the Bureau elected for a cash settlement of the protest. While the settlement agreement did allow the offerors the option of submitting revised proposals under an amended RFP in lieu of a cash settlement, Commerce and Bureau officials said they did not expect the offerors to accept this option since the 5-day period provided little time to prepare revised submissions.

Reasonableness of Amount Paid and Costs Claimed in First Bid Protest Settlement

On the basis of our limited review of the offerors' claims and supporting documentation, we have four concerns regarding the amounts paid to settle the first bid protest. These concerns involve

- insufficient or no support for a large portion of claimed costs;
- costs claimed for work before the issuance date of the RFP;
- bid preparation costs claimed for work after the Bureau notified the offerors that their proposals were noncompliant and, therefore, no longer eligible to compete for the minicomputer contract; and
- incorrect computation of some claimed costs.

However, with the exception of the incorrectly computed claimed costs, we were unable to conclude definitely that these other costs are improper, and, therefore, should not have been paid, because what constitutes allowable bid and proposal preparation and protest costs is not clearly defined. Due to the fact that we could not reach any definite conclusions on these costs, we did not attempt to identify the total dollar values involved.

We also found that the Bureau made a cursory review and did not question the offerors' claimed costs. The Bureau's current procurement chief said that the reason for this was that the 30-day period allowed in the settlement agreement to make this review was insufficient to arrange and make an examination by audit personnel. He said at least 60 days was needed.

Insufficient Support for Some Claimed Costs

The settlement agreement required that the offerors submit "appropriate supporting documentation" with their claims. The three offerors did not provide sufficient documentation for more than one-half of the costs

they claimed. Of the $1,327,700 claimed by the offerors, $736,300 or 55.4 percent was for overhead ($546,300) and general and administrative costs ($190,000). None of the offerors provided any support or backup data for overhead costs claimed other than describing their accounting procedures.

Only Offeror One provided a breakout of general and administrative costs. However, it consisted only of summary figures and did not describe the costs in detail. This summary raised questions for us because it included items such as federal and state income taxes, funds received from a litigation settlement, sales discounts, and asset sales, all of which are usually not considered general and administrative costs.

Costs Incurred Before Issuance of the RFP

The settlement agreement said that the offerors' claims would be limited to costs incurred in preparing their proposals and pursuing the protest action. However, we found that claims by Offerors One and Two included costs incurred before the minicomputer RFP was issued on September 19, 1986.

Offeror Two claimed and the Bureau paid $3,455 for responding to the Bureau's request for information (RFI) on its proposed minicomputer acquisition. The RFI took place about 6 months before the RFP was issued. Offeror One's claim included direct labor charges for four employees before the minicomputer RFP was issued. Offeror Three did not submit sufficient documentation for us to determine if it too had included costs in its claim incurred before the minicomputer RFP was issued.

Claim of Proposal Preparation Costs Incurred After Notice of Proposal Rejection Was Received

In a letter dated February 9, 1987, the Bureau notified all three offerors that their proposals were noncompliant with the database software requirements contained in the minicomputer RFP. This letter further said that all three were no longer eligible to compete for the minicomputer contract. All three offerors included in their claims the proposal preparation costs they incurred after the Bureau formally notified them that they were no longer eligible to compete for the minicomputer contract. For example, in examining the offerors' submissions to support the settlement payments, we found that Offeror Two included at least $32,922 of these costs in its claim. This represents about 10 percent of Offeror Two's $319,000 claim.

Incorrect Computation of Cost

Offeror Two's claim was overstated by $1,552 because it incorrectly computed the amount of general and administrative costs applicable to the minicomputer procurement. The offeror made a partial payment to its lawyers and claimed this amount as a direct cost rather than as a legal expense. As a result, the offeror applied its general and administrative (G and A) rate to the payment, which resulted in the overstatement. Had it been classified as a legal expense as the remainder of the lawyers fees incurred were, the additional $1,552 in G and A costs would not have added to the claim because the legal fees would not be subject to the G and A rate.

Reasons for Second Protest

The second bid protest was filed with the GSBCA on May 22, 1987, about a week after the contract was awarded, and involved two other offerors with different reasons for protesting. One offeror believed it should have been awarded the minicomputer contract since it had a lower evaluated price than the winning offeror. The second offeror claimed it filed a protest with the Bureau after being notified by the Bureau on February 13, 1987, that it had been eliminated from the competitive range. This offeror asserted that the Bureau ignored its protest and awarded the contract to another offeror in violation of FAR.

On May 29, 1987, the GSBCA held a hearing and temporarily suspended the Bureau's authority for the minicomputer procurement. On June 11, 1987, both offerors withdrew their protests, but retained their right to pursue the protests at a later date. Neither offeror gave a reason for withdrawing its protest. On June 17, 1987, the GSBCA lifted the suspension order.

Bid Protests Delay Other Procurements

The work required to address the bid protests placed a heavy burden on the Bureau's understaffed procurement office. As a result, the procurements of equipment and supplies needed for generating maps and equipment for entering questionnaire information into computer files were delayed.

Bureau Procurement Staff Below Authorized Levels

In late 1983, Commerce delegated the responsibility for making larger procurements to the Census Bureau. The Bureau was authorized a procurement chief and up to six contract specialists through fiscal year 1987. However, from its inception in early 1984 to mid-1987, the Bureau's procurement office operated with a staff significantly below its authorized level and experienced a high turnover in its leadership.

For example, during the first bid protest in March 1987, the Bureau employed an acting chief and three of the six authorized contract specialists. Moreover, in its first 3 and 1/2 years of operation, five different persons served as either the permanent or acting chief of the office.

Commerce and the Bureau took actions after the bid protests to improve the performance of the procurement office. First, the Bureau filled most of the contract specialist vacancies by July 1987. Second, the new procurement chief said he has identified the training needs of the staff and developed a strategy for fulfilling these needs. He also has established a program of weekly seminars on procurement issues for his staff. Also, the then Deputy Secretary of Commerce told us that he had verbally told his subordinates to build in sufficient time in the procurement process to handle future bid protests.

Delayed Procurement of Geographic Equipment and Supplies

The contract award for monochromatic plotters, which the Bureau planned to award by October 30, 1987, was made on January 26, 1988. The plotters are used to draw the maps used in the census. According to the Bureau's Special Assistant to the Chief, Geography Division, the understaffed procurement office contributed to the delay. The other reasons he offered for the delay included the difficulty of designing the specifications and the time needed to develop procurement justifications. To compensate for the delay in the receipt of the plotters, the Bureau was considering at the time of our review a 40 percent increase in the number of plotters to be purchased so that they could have additional capacity, if needed.

Furthermore, according to a Bureau official, the delay in the award of the plotters caused a delay in the procurement of the paper needed for the maps because different types of plotters require different types of paper. Thus, the procurement of the paper could not be initiated until the Bureau awarded the plotter contract.

Data Entry Equipment Delayed

The Bureau's Chief, Technical Services Division, told us that procurement of equipment used to transfer information from census questionnaires to computer files was delayed by about 1 year because of the understaffed procurement office. As a result, the equipment expected to be used in the 1990 census to read the data will not be tested in the 1988 Dress Rehearsal. Instead, the Bureau plans to test the equipment in one

of its monthly data collection activities. However, the monthly data collection activities are not fully representative of a decennial census because different types of questionnaires are used.

Conclusions

Given the late start and earlier delays in the minicomputer procurement, Commerce and the Bureau were motivated by management concerns to reach an early settlement of the protest and proceed with the procurement. Because the procurement was suspended by the GSBCA pending a decision on the protest, Commerce and the Bureau did not feel that they could invest the additional time that would be required to defend the protest and still be in a position to award a contract before the June 1, 1987, deadline. They believed that the early settlement was the best way to avoid additional delays and other adverse effects for the 1990 Decennial Census.

Although Commerce's and the Bureau's concerns are not without merit, aspects of this procurement and bid protest settlement are disturbing. We believe that the Bureau could have avoided the cash settlement if it had not created its own management dilemma by failing to plan properly for the procurement, by starting the procurement process late, and by not adhering to proper procurement procedures. These management deficiencies created serious time pressures that persuaded the Bureau to opt for a cash settlement. In essence, the management deficiencies placed the Bureau in a position which, in its opinion, did not permit the necessary time to pursue the protest on the merits or cure the procurement flaw. As a result, the government paid a total of $1.1 million to settle the protest and proceed with the procurement.

We are also concerned about the amount of money paid in the settlement. We have reservations about the reasonableness of some of the claimed costs paid and believe that they were not adequately reviewed before payment. However, in the absence of clear definitions of what constitutes allowable bid and proposal preparation costs and protest costs, and recognizing that the Bureau, under the settlement agreement, had a 30-day period to review claimed costs and did not question any of the claimed costs, we do not believe that questionable payments are recoverable.

87-468 (108)